MENTAL RETARDATION ABSTRACTS

VOL. 10, NO. 4

OCTOBER-DECEMBER 1973

U. S. Department of Health, Education, and Welfare
Office of Human Development
Division of Developmental Disabilities
Washington, D.C. 20201

Mental Retardation Abstracts is a quarterly publication of the Division of Developmental Disabilities, Office of Human Development. It is a specialized service designed specifically to meet the needs of investigators and other workers in the field of mental retardation for rapid and comprehensive information about new developments and research results and to foster maximum utilization of these results.

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Herner Information Services, Inc.
2100 M Street, N.W.
Washington, D.C. 20037

Use of funds for printing this publication was approved by the Director of Office of Management and Budget, June 30, 1969.

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MENTAL RETARDATION ABSTRACTS

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BROAD ASPECTS OF MENTAL RETARDATION

2701 HOLDER, ANGELA RODDY. Res ipsa loquitur. Part 6: Psychiatry. *Journal of the American Medical Association*, 221(13):1587-1588, 1972.

The doctrine of *res ipsa loquitur* was found by the court in New York not to apply in the case of an inst epileptic MR woman who was badly burned after she lowered the rails on her bed, had a seizure, and fell on a radiator. The court held the woman's actions to be voluntary, finding that even though she was MR, she was sufficiently aware of her activities to be held responsible for her own injuries. But a patient in a psychiatric hospital who contracts a physical illness may plead *res ipsa loquitur* if the illness is ignored. Such a case, involving a woman who was both psychotic and MR, and who died of an untreated fever, was won by plaintiff's father, the court ruling that the jury could infer negligence. - *N. Mize.*

2702 PLOTKIN, STANLEY A. Fundamentalist and eschatologic approach to ethics. *New England Journal of Medicine*, 287(4):205, 1972. (Letter)

Dr Woodford's recent editorial entitled "Ethical Experimentation and the Editor" only further confirms that a growing group of sanctimonious eschatologists is now making ethical decisions for the medical profession. Personal experience with a recent paper reporting results of a vaccine study in MR children only bolsters this view. The paper was rejected by a British journal on the grounds that unvaccinated controls had undergone an unnecessary venipuncture. It is to be hoped that in future cases where an ethical issue is raised, the editors will seek advice from qualified scientific reviewers in the author's field rather than solely from the eschatologists. - *N. Mize.*

The Wistar Institute
Philadelphia, Pa.

2703 BRAGG, ERNEST A., JR. Fundamentalist and eschatologic approach to ethics. *New England Journal of Medicine*, 287(4):205, 1972. (Letter)

Both of Dr Woodford's suggested editorial responses to the recent "ethical" recommendations of the Committee on Editorial Policy of the Council of Biology Editors regarding research that violates ethical canons are unsatisfactory. If accepted at face value, the Committee's censorship recommendations could deny the medical and scientific community much needed information because the human experimentation involved did not meet the editor's ethical standards. *The New England Journal of Medicine* should not limit its own response to either rejecting a paper or to publishing it without comment, as Dr Woodford suggests. Instead, a better policy would be for the *Journal* to publish such papers, accompanied by an editorial comment on the ethical defects of the experiment. - *N. Mize.*

2704 BOWMAN, JAMES E. Ethical issues in genetic screening. *New England Journal of Medicine*, 287(4):204-205, 1972. (Letter)

Recently passed laws in the District of Columbia, Massachusetts, and Virginia requiring mandatory sickle cell screening of elementary school children, as well as laws in Virginia requiring hemoglobin S testing for marriage applicants, establish a dangerous precedent and ought, therefore, to be repealed. Funds now being spent on the implementation of these misguided laws should instead be directed toward the amelioration of the social ills which afflict the urban poor in this country and which contribute substantially to high infant and maternal morbidity and mortality rates. The Institute of Society, Ethics and Life Sciences, which professes support for voluntary genetic screening programs, should intervene in this situation before

such laws are enacted elsewhere. (3 refs.) - *N. Mize.*

Pritzker School of Medicine
University of Chicago
Chicago, Illinois

2705 **HERRIOT, P.** Assumptions underlying the use of psychological models in subnormality research. In: Clarke, A.D.B., & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*. Baltimore, Williams and Wilkins, 1973, p. 153-165.

The existence of process models of the MR is a necessary condition for discovering defects, since defects should be defined by reference to the systems of the subnormal rather than the normal. Model-making is distinct from deficit-discovery, as deficit-discovery is more strongly influenced by the experimental conditions. Remediation may also benefit from model-making. Remedial efforts to compensate for a specific defect may not lead to an overall change in behavior. A model would provide the basis for more specific remediation of a well defined process. (19 refs.) - *V. J. Goldberg.*

2706 **ECKSTEIN, HERBERT B.; HATCHER, GEOFFREY; & SLATER, ELIOT.** Severely malformed children. *British Medical Journal*, 2(5861):284-289, 1973.

Treatment of severely malformed children is discussed from the viewpoints of the pediatric surgeon, the general practitioner and pediatrician, and that of a new therapeutic approach. The surgeon's experience is that all children with myelomeningocele who were refused surgical treatment have died within a month; it is submitted that if a baby is not to be treated, then the surgeons and nursing staff should do nothing to prolong life. According to the pediatrician, it is right to provide full statistical information to the parents about the rates of survival with and without surgery; it should be stressed that immediate surgical operation will not bring about any long-term improvement in paralysis. In practice the most difficult problem in dealing with the parents is supporting those whose children have not been treated surgically, but who do not die in the first month or so. A new basic approach is to regard the prevention of suffering as the primary aim and the preservation of life as secondary and acceptable only if the suffering involved is tolerable with the aid of modern support methods and is of short term. (6 refs.) - *A. C. Schenker.*

2707 **MIDWINTER, R. E.** Mental subnormality in Bristol. *Journal of Mental Deficiency Research*, 16(1):48-56, 1972.

A prevalence study of MR in Bristol, England, as of January 1, 1969, was conducted in order to provide data for future planning in community mental health care. The prevalence for the city and county of Bristol was 3.70 per thousand population. A much greater percentage of the 892 long-term hospital patients than of the 692 MR persons in community care was aged 20 years or older. Of the total of 1,584 mentally subnormal individuals, 53.3% were male and 46.7%, female. The ratio of males to females in community and hospital care was almost identical. The only reasonably clear diagnostic category within the range of MR was mongolism, recorded in 229 cases (151 in community care and 78 in MR hospitals; 127 under age 20.) Mean CA at death for mongols was 20 years and for all subnormal persons, 31.9 years. (8 refs.) - *B. J. Grylack.*

University of Bristol
Bristol, England

2708 **DUFF, RAYMOND S.; & CAMPBELL, A.G.M.** Moral and ethical dilemmas in the special-care nursery. *New England Journal of Medicine*, 289(17):890-894, 1973.

Experiences are described which indicate some of the grave moral and ethical problems faced by physicians and families in a large special care nursery where medical technology has prolonged life and where "informed" parents influence the management decisions concerning their infants. To determine the extent to which death resulted from withdrawing or withholding treatment, hospital records were examined between January 1970 through June 1972. There were 299 deaths resulting from pathologic conditions in spite of treatment (Category 1); 256 (86%) were in this category. Deaths in Category 2 were associated with severe impairment (multiple abnormalities, trisomy, cardiopulmonary disease, meningomyelocele, and other CNS disorders, and short bowel syndrome). There were 43 (14%) in this group. These deaths or their timing were associated with discontinuance or withdrawal of treatment.

Making decisions in the cases which appear hopeless should be a joint effort between the families and their physicians. There is great variability and often much uncertainty in prognoses and in family capacities to deal with defective newborn infants. It seems appropriate that the profession be held accountable for presenting fully all management options and their expected consequences. (27 refs.) - *A. C. Schenker.*

Yale University School
of Medicine
New Haven, Connecticut 06510

2709 SHAW, ANTHONY. Dilemmas of "informed consent" in children. *New England Journal of Medicine*, 289(17):885-890, 1973.

Some of the ethical dilemmas that may arise in the area of "informed consent" when the patient is a minor are discussed. Several case reports are presented which include relevant issues in this context; they concern: a 22-hr baby with esophageal atresia (Baby A), with obvious signs of mongolism; Baby B, with duodenal obstruction and signs of Down's syndrome at age 36 hr; Baby C, with imperforate anus and microcephalus; Baby D, with Down's syndrome and hydroureteronephrosis (age 2 wks); Baby E, with Down's syndrome, intestinal obstruction and congenital heart disease; and Baby F, with esophageal atresia and tracheoesophageal fistula. Two older children are included in the presentation, one with a mediastinal mass which turned out to be a neuroblastoma, and the other with scalp cysts and polyps found in the colon. All these cases raise questions about the rights and obligations of physician, parents, and society in situations in which parents decide to withhold consent for treatment of their children. These problems should be brought out into public forum; decisions in such cases should not be made solely by the attending physicians. (8 refs.) - *A. C. Schenker.*

University of Virginia
Medical Center
Charlottesville, Virginia 22901

2710 CONLEY, RONALD W. The epidemiology of mental retardation. In: Conley, Ronald W. *The Economics of Mental Retardation*. Baltimore, Maryland, The Johns Hopkins University Press, 1973, Chapter 2, p. 6-49.

The epidemiology of MR, which is perforce based on surveys and not IQ scores, is reviewed, and methods and criteria for identifying the MR are discussed. The causes of MR are summarized under the headings of: brain damage, poor genetic endowment, and deprivation as a result of environmental conditions, physical limitations, and mental handicaps. Methods of identification of the MR are not standardized, and for this reason epidemiological studies of such individuals have produced widely varying results in different countries and in different populations in the same country. In terms of IQ results, about 5.6 million persons in the US under the age of 65 have IQs below 70, and about one in 8 has an IQ below 50; nonwhites are apt to have IQs below 70, and the children of the poor are much more likely to be MR than those of middle or upper classes. Among the physical or emotional handicaps associated with the MR are hearing loss, loss of sight, cerebral palsy, epilepsy, and psychiatric disorders; slightly over 30% of MR children suffer additional physical handicaps, and about 40% suffer psychiatric problems. (48 refs.) - *A. C. Schenker.*

2711 GUNZBURG, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, 234 p. (Price unknown).

The British Society for the Study of Mental Subnormality presents a series of 29 articles on the subject of the mentally subnormal which includes various disciplines. Several papers stress the possibility of teaching even severely handicapped persons certain routine and useful tasks. The consensus of opinion is in favor of modernizing the physical and emotional environment around the child's residence, stressing the preparation of the child for coping with the outside world; inst life can be made more homelike by conducting work and play sessions in small informal groups. Differences are pointed out between social and mental age, and the limitations of the intelligence quotient test are delineated. Teaching of the concepts of numbers and space and coping with the problems of speech are some of the ongoing educational projects discussed. In addition to

problems concerned with the mentally subnormal, the management of parents of such children is discussed. The interdisciplinary approach is recommended for successful rehabilitation. - *A. C. Schenker.*

CONTENTS: The Present Scene; The Immediate Future; Assessment and Evaluation; The Education of the Multiply Handicapped; General Educational Aspects; Special Approaches in Education; Industrial Rehabilitation; The Physical Environment; The Contribution of Some Disciplines; The Parents of Subnormal Children.

2712 **ENGELHARDT, H. TRISTRAM, JR.** Euthanasia and children: the injury of continued existence. *Journal of Pediatrics*, 83(1):170-171, 1973. (Letter)

Ethical implications of euthanasia, as applied to children, are discussed. The question arises as to who can best make the decision for the child in regard to termination of life. From the legal viewpoint, a recently developed concept is that of "wrongful life," which alleges that under certain circumstances life or existence is an injury to the person alive. A number of suits have been initiated in the United States and in other countries in which it was alleged that total nonexistence would have been preferable to any existence under the circumstances cited. As medicine is increasingly more able to prolong life into marginal existence, the quality of life prolonged must be considered. Implications for medicine involve the need for recognizing an ethical category in cases where life can be of grossly negative value. (4 refs.) - *A. C. Schenker.*

University of Texas
Medical Branch
Galveston, Texas 77550

2713 **MOORE, JERRY P.** Ethics of human experimentation (cont.). *New England Journal of Medicine*, 289(11):593-594, 1973. (Letter)

What can any evolutionary philosophy, totally devoid of absolutes and standards, offer in answering questions about the fate of defective individuals? The evolutionary doctrine holds that society is evolving upwards; the defective, having nothing better to offer, may serve this process best by submitting to human experimentation. This undesirable conclusion suggests that many persons in the medical field ought to reexamine the evolutionary philosophy underpinning of our twentieth century. A highly qualified scientist, Dr. A. E. Smith, is a proponent of the nonevolutionary approach to biologic studies; his book, "The creation of life," is well worth reading in this connection. - *A. C. Schenker.*

Texas Tech. University School
of Medicine
Lubbock, Texas

2714 **PLOTKIN, STANLEY A.** Ethics of human experimentation (cont.). *New England Journal of Medicine*, 289(11):593, 1973. (Letter)

The Willowbrook Hospital's experiments are defended on the grounds that when children's diseases are being studied, there is no substitute for children as Ss. How could polio vaccine have been developed without experiments in children? As long as the risk is assessed and the decision made openly with the consent of the parents and of the authorities other than the experimenters (as was the case in Willowbrook), there is little danger of overstepping ethical bounds. The dogma of not involving children in nontherapeutic experiments, when applied to the current policy of vaccinating male children against rubella, allegedly to protect their mothers, makes this procedure also unethical. - *A. C. Schenker.*

Wistar Institute
Philadelphia, Pennsylvania

2715 **DOLAN, MARGARET.** Ethics of human experimentation (cont.). *New England Journal of Medicine*, 289(1):46, 1973. (Letter)

The views of the American Public Health Association regarding ethics of experimentation on children, in reference to the Willowbrook State School study, are stated. Once unhealthful conditions at an institution are perceived, the obvious and ethically imperative obligation of any health worker is to remedy those conditions and not to exploit the circumstances or the patients, no matter how valuable the experimental ends may be. The resources and efforts spent in experimental endeavors might better serve those patients

MEDICAL ASPECTS—Diagnosis (General)

2716 **WOLFENSBERGER, WOLF.** Diagnosis diagnosed. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 7, p. 61-69.

The importance of diagnosis in the treatment of MR is discussed; the beliefs or dogmas associated with diagnosis in the medical profession are analyzed. The belief that diagnosis is better than no diagnosis is countered by the fact that many parents have reason to feel that all diagnosis did in their case was to exclude their child from a program previously enrolled in. Early diagnosis, claimed by some to be mandatory, has exposed the family in many cases to professional management which appeared contrary to the welfare of all concerned. It is held that diagnosis is not essential to successful treatment and that differential diagnosis does not always imply differential treatment. Extensive evaluation is not always better than a limited one; sometimes it is entirely wasted because it does not address itself to the presenting question. Team diagnosis is not always better than individual diagnosis, since contradictory or puzzling findings are left unsolved. It is recommended that diagnostic services be sought under certain conditions: the service should not precede other service development but follow it; it should be tied firmly into the MR service continuum; it should be structured to offer substantial feedback; and a program of staff training should be a structured element of a diagnostic center. (7 refs.) - *A. C. Schenker.*

National Institute of
Mental Retardation
Toronto, Canada

2717 **KORF, BRUCE R.; & SCHUH, BARBARA E.** Dermatoglyphic patterns in newborns. *Lancet,* 2(7831):740, 1973. (Letter)

The use of an otoscope for analyzing dermatoglyphic patterns is recommended. This instrument concentrates a bright spot of light on a small area and magnifies clearly at a short working distance. Contrast between ridges and furrows in enhanced by lightly inking the hands before observation. - *A. C. Schenker.*

Monmouth Medical Center
Long Branch, New Jersey 07740

2718 **SMITH, DAVID W.; & GONG, BRADLEY T.** Scalp hair patterning as a clue to early fetal brain development. *Journal of Pediatrics,* 83(3):374-380, 1973.

The original and clinical significance of aberrant hair directional patterning over the scalp and the upper face was studied. Hair patterning, which is determined at 10-16 weeks of fetal life, appears to be a secondary feature which is determined by the growth and shape of the underlying tissues during the development of this epidermal derivative. Neither the pattern of dermal ridges nor that of hair direction represents a primary genetic determination, and either can be altered in early fetal life by genetic or environmental factors which affect the growth and shape of underlying tissues prior to or during the period of their development. Aberrant hair patterning may serve as a valuable minor anomaly in the recognition of more serious problems in morphogenesis. (5 refs.) - *A. C. Schenker.*

RR234, Health Sciences Building
RD-20, University of Washington
Seattle, Washington 98195

2719 **BURD, LAWRENCE I.; MOTEW, MARTIN; & BIENIARZ, JOZEF.** A teaching simulator for fetal scalp sampling. *Obstetrics and Gynecology*, 39(3):418-420, 1972.

An improvised teaching simulator for fetal scalp monitoring, using an Ayers Obstetrical Manikin and a child's doll, has resulted in an improved quality of fetal monitoring during labor at a Chicago hospital. Since the teaching device has been in use, the number of acid-base determinations of fetal status, a procedure requiring considerable technical skill, has been substantially increased for high-risk pregnancies. (2 refs.) - *N. Mize.*

Michael Reese Hospital and Medical Center
Chicago, Illinois 60616

2720 **KABACK, M. M.** Current considerations in the antenatal detection of human genetic disorders. *Pediatric Research*, 7(1):55, 1973. (Abstract)

Changing social and legal attitudes toward abortion in many areas have prompted programs for intrauterine diagnosis, and selective abortion is made possible for families at risk for severe and untreatable congenital diseases. Approximately 1,500 pregnancies have been monitored in North America over the past few years because of substantial risk of detectable genetic disease in the fetus. Amniocentesis has been performed in 75% of these pregnancies, because of the risk of chromosomal abnormality in the fetus. The efficacy and safety of this procedure are still being investigated; the recorded incidence of significant complications is approximately 2%. Prospective programs are now attempting to define the total risks of this procedure. Genetic screening programs amongst couples of childbearing age might be implemented to delineate families at risk before the birth of an affected child; thus, such couples could terminate a pregnancy which is certain to end in a defective child and reproduce only when assured of a normal fetus. Important social and ethical problems are involved in selective abortion; the more distant and preferable goal is toward effective treatment of genetic diseases. - *A. C. Schenker.*

University of California
Los Angeles Harbor General Hospital
Torrance, California

2721 **REISS, H. E.** The technique and risks of amniocentesis in early pregnancy. *Pediatric Research*, 7(1):55-56, 1973. (Abstract)

The timing, route chosen, and technique used for amniocentesis are discussed in detail. The procedure yields both liquor and fetal cells; the former can be used for biochemical analysis and the latter for immediate screening as to sex and karyotype studies. Possible hazards of amniocentesis are infection, abortion, rhesus sensitization, trauma, and fetal damage. For these reasons placental localization is of major importance. - *A. C. Schenker.*

Hackney Hospital
London, England

2722 **CARTER, C. O.** Prenatal diagnosis—prospects, administration and ethics. *Pediatric Research*, 7(1):56, 1973. (Abstract)

The prenatal detection of chromosome abnormalities is discussed and its limitations and ethical considerations are pointed out. The anomalies able to be prevented by prenatal diagnosis at present are about 40/1,000 births; these include chromosomal abnormalities, inborn errors of metabolism, and other multifactorial anomalies. New techniques for detecting chromosomal aberrations are now being developed, and the discovery of a method for obtaining fetal blood for analysis will increase the detection of other congenital abnormalities. The decision to ask for prenatal diagnosis and what action to take if an anomaly is found rests with the parents; the physician's role is to provide full information on diagnosis, prognosis, and risks and to carry out the parents' wishes if they are not morally repugnant to him. - *A. C. Schenker.*

MRS Clinical Genetics Unit
Institute of Child Health
London, England

2723 **GALJAARD, H.** Techniques for rapid prenatal diagnosis of some inborn errors of metabolism. *Pediatric Research*, 7(1):56, 1973. (Abstract)

Methods for prenatal diagnosis of some inborn errors of metabolism are presented which enable a

considerable reduction in the number of cells required for this purpose. The sensitivity of the biochemical assay can be increased by reducing the incubation time and measuring volumes. The measurement of extinction values in smaller volumes using microcapillaries and a microspectrophotometer is discussed. Results on enzyme determinations include those for: arylsulfatase, α-1-4-glucosidase, α-galactosidase, and β-D-acetylglucosaminidase and β-galactosidase. A freeze-drying procedure is described whereby cell loss is minimal and parallel protein determinations are avoided. The procedure is applied to cultivated cells from controls, heterozygotes, and patients with glycogenosis II and Tay-Sachs disease. - *A. C. Schenker.*

Department of Cell Biology and
Genetics
Medical Faculty
Rotterdam, The Netherlands

2724 **HUBBELL, H. R.; BORGAONKAR, D. S.; & BOLLING, D. R.** Dermatoglyphic studies of the 47,XYY male. *Clinical Genetics*, 4(2):145-157, 1973.

While distinctive dermatoglyphic patterns are known to be characteristic of certain specific chromosomal disorders, comparative dermatoglyphic studies involving 61 47,XYY males and 166 46,XY controls indicate that this is not the case for the 47,XYY condition. Experimental index scores compiled on the basis of these studies correctly diagnosed a normal 46,XY male in only 65 of 116 such individuals tested. Overall, the variability of dermatoglyphics seen in 47,XYY patients parallels the variability of their physical features. The fact that no specific pattern of abnormalities emerged strongly suggests, in contrast to the preliminary findings of other researchers, that the extra Y chromosome has little or no effect on the dermatoglyphic pattern. (51 refs.) - *N. Mize.*

M. D. Anderson Hospital and
Tumor Institute
Houston, Texas 77025

2725 **MAHONEY, MAURICE J.; & HOBBINS, JOHN C.** Ultrasound and growth of amniotic-fluid cells. *Lancet*, 2(7826):454-455, 1973. (Letter)

Sonography prior to amniocentesis has been found to be advantageous with middle-trimester amniocentesis using B mode scanning with pulsed ultra sound at 1-2 MHz, peak instantaneous intensity of 30 milliwatts per cm^2, and average scanning time of 3-5 minutes, with an occasional patient receiving up to 10 minutes' exposure. Examination of 116 consecutive amniotic fluid cultures from pregnancies of 12-20 weeks' gestation, with prior ultrasound used in 83 but not in 33, showed no growth failures in either group and no differences in the number of colonies which appeared, the types of cells that grew, or the rate of cell growth to confluency for biochemical studies. The time from amniocentesis until the culture was karyotyped ranged from 14 to 26 days in the cultures without ultrasound and from 8 to 26 days in those with ultrasound. No differences were seen in the rare finding of a chromosome aberration nor in the number of aneuploid cells per culture between the 2 groups. (8 refs.) - *B. J. Grylack.*

Yale University
New Haven, Connecticut 06510

2726 **MERRICK, S.; LEDLEY, R. S.; & *LUBS, H. A.** Production of G and C banding with progressive trypsin treatment. *Pediatric Research*, 7(1):39-44, 1973.

In a series of controlled experiments, human metaphase cells were treated by different trypsin methods. In the simplest sequential treatment, cell slides were stained initially either by the Giemsa 9 or acetic-saline-Giemsa techniques, were treated with trypsin for 4 minutes following destaining, and were restained with Giemsa at pH 6.8. In the second type of sequential treatment, slides were stained initially with Giemsa 9, treated with trypsin for 4 minutes, stained with conventional Giemsa, destained, treated again with trypsin, restained, and destained for varying periods of 6, 8, or 12 minutes. In the prolonged trypsin treatment, slides were stained with Giemsa 9, destained, and treated once for periods ranging from 10 to 30 minutes of trypsin treatment, without intervening staining or destaining. The identity of Giemsa 9, acetic-saline-Giemsa, and trypsin bands was shown following brief trypsin treatment. With longer periods of this treatment, G bands were shown to disappear progressively and C banding to appear. These results were confirmed by an adaptation of an automated computer analysis system generating density curves for G-banded cells. The findings indicate that banding is influenced primarily by the presence or configuration of proteins which are lost or altered during trypsin treatment, the progressive

loss of chromosomal protein probably occurring with secondary loss of DNA following longer trypsin treatment. (10 refs.) - *B. J. Grylack.*

*University of Colorado Medical Center
Denver, Colorado

2727 **GRIFFITHS, MARGARET I.; & JOHN, FAY M.** Red cell phospholipid determination in diagnosis of neurological disease. *Archives of Disease in Childhood*, 48(8):650-652, 1973.

The sphingomyelin content of erythrocytes was determined in 83 patients; 25 of these served as controls, 11 others represented various neurological disorders, 2 were cases of mucopolysaccharidosis, 3 had leukodystrophy, 21 were cases of dementia or amentia, and 21 had cerebral atrophy following brain damage. Since the last 2 groups gave very similar results, the investigation was not found to be of practical use in selecting children with dementia or amentia of unknown origin for more complicated neurological investigation, as was hoped at the outset. (2 refs.) - *A. C. Schenker.*

Institute of Child Health
Birmingham B16 8ET, England

2728 **LIPSHAW, LEON A.; WEINBERG, JERROLD H.; SHERMAN, ALFRED I.; & *FOA, PIERO P.** A rapid method for measuring the lecithin-sphingomyelin ratio in amniotic fluid. *Obstetrics and Gynecology*, 42(1):93-98, 1973.

A simple procedure for the analysis of amniotic fluid lipids utilizes thin layer chromatography plates prepared from ordinary histology slides and other inexpensive and generally accessible equipment. The test requires no more than 1 ml of fluid, and the results can be obtained with minimum technical skill in less than 45 minutes. When visual inspection of the thin layer chromatography microplate has suggested a lecithin-sphingomyelin ratio very close to 2:1, the "long" procedure for chromatographic separation of amniotic fluid lipids proposed by Gluck and Kulovich (1971) has been employed. (11 refs.) - *B. J. Grylack.*

Sinai Hospital of Detroit
Detroit, Michigan 48235

2729 **MYERS, GARY J.; HEDLEY-WHYTE, E. TESSA; & FAGAN, MARY E.** Reevaluation of role of rectal biopsy in diagnosis of pediatric neurologic disorders. *Neurology*, 23(1):27-34, 1973.

Rectal biopsy for histologic evaluation of autonomic neurons may be used as an aid to diagnosing chronic neurologic disease in children despite the lack of normalized histochemical criteria. Rectal biopsies performed in 24 children with chronic neurologic diseases were inconclusive in yielding criteria for use in diagnosis, although a Sudan black B-reactive lipid was present in rectal myenteric neurons of all patients examined. Rectal biopsies for diagnosis of chronic progressive illnesses are difficult to interpret even with histochemical techniques, and are generally unnecessary due to other, more reliable diagnostic techniques. (33 refs.) - *C. Wares.*

Harvard Medical School
Children's Hospital Medical Center
Boston, Mass.

2730 **LOESCH, DANUTA.** The contributions of L. S. Penrose to dermatoglyphics. *Journal of Mental Deficiency Research*, 17(1):1-17, 1973.

The contributions made to the field of dermatoglyphics by Penrose have supplied medical science with a new instrument of diagnosis and a new area of study for human genetics. Originally seeking clear-cut morphologic peculiarities which might be used in clinical and genetic studies of some obscure developmental anomalies, he later took a serious interest in dermatoglyphics. Beginning with his 1949 study of the angle between the *a*, *d*, and *t* triradial points, Penrose was involved with diagnostic problems and topology and was convinced of the need for a new classification of ridge patterns. His observations and reflections in this field have provided a logically based classification which is a standard method of analysis for future use. (38 refs.) - *B. J. Grylack.*

Psychoneurological Institute
Warsaw, Poland

2731 **HIRSCH, W.; & SCHWEICHEL, J. U.** Morphological evidence concerning the problem of skin ridge formation. *Journal of Mental Deficiency Research*, 17(1):58-72, 1973.

The development of the fingertips of 20 normal human embryos was examined by light and electron microscopy, and the obtained results were investigated to add to understanding of the mechanism by which genetic information is transformed into papillary ridges and their patterns. During the first stage in the second and third months, the shape of the finger pads is formed on the basis of genetic conditions and under more immediate environmental influences. During the next stage, in the fourth and fifth months, the glandular folds and, subsequently, the sweat glands begin to form, starting from the edge of the asymmetrical finger pads. After the epidermiscorium border has been fully formed in its basic structures by the sixth month, surface changes in the form of regular papillary ridge patterns corresponding to the distribution of glandular folds appear from the seventh month. If interaction is disturbed in nerve aplasia or dysplasia, abnormal development or no ridge development may ensue. Extreme deviations of the normal pad form appear to lead to disturbances of the papillary ridge patterns. Interference with formation of sweat glands, proliferation disturbances, and disturbances in keratinization will prevent the ridges from taking full shape on the surface. (46 refs.) - *B. J. Grylack.*

Children's Clinic of the Free
University of Berlin
Berlin, Germany

2732 **SAVORY, JOHN; & HEINTGES, M. GERALDINE.** Cerebrospinal fluid levels of IgG, IgA and IgM in neurologic diseases. *Neurology*, 23(9):953-958, 1973.

The clinical usefulness of the technique of simple immunodiffusion of Oudin has been evaluated for studying unconcentrated cerebrospinal fluid (CSF) levels of IgG, IgA, and IgM in neurologic disease, including multiple sclerosis, subacute sclerosing panencephalitis, bacterial meningitis, and Guillain-Barre syndrome. The procedure correlates closely with immunochemical techniques involving light-scattering of antigen-antibody complexes. Using Oudin's technique, normal values for adults and children were established. In multiple sclerosis, 88 percent of the patients tested showed IgG elevations when compared to the normal values of CSF level. The Oudin technique is considered valuable in diagnosing multiple sclerosis and subacute sclerosing panencephalitis from IgG levels of CSF. Measurements of IgA and IgM presently appear to have no clinical value. (27 refs.) - *C. Wares.*

University of North Carolina
Chapel Hill, N.C. 27514

2733 **CRAFT, IAN; TALBERT, DAVID; & CHAMBERLAIN, GEOFFREY.** False interpretation of fetal heart monitoring. *British Medical Journal*, 3(5882):694, 1973.

False interpretation of fetal heart monitoring by the method of scalp electrodes during cervical dilatation may be due to interference with or substitution of the fetal pattern by maternal signals, especially when the fetal signal is weak or absent. The sensitivity controls of some monitoring equipment may be set to establish a threshold for the fetal signal to prevent such an error, but various mechanical features of equipment may contribute to false interpretation by uncontrollable response to many different stimuli. - *C. Wares.*

Queen Charlotte's Hospital
London W6, England

2734 **IKEUCHI, T.; SASAKI, M.; OSHIMURA, M.; AZUMI, J.; TSUJI, K.; & SHIMIZU, T.** Ultrasound and embryonic chromosomes. *British Medical Journal*, 1(5845):112, 1973. (Letter)

Diagnostic ultrasound in obstetric practice has been shown in clinical observations of 103 exposed aborted fetuses not to produce more chromosome aberrations than were found in 103 nonexposed aborted fetuses. There was also no apparent difference in types of aberrations noted. (9 refs.) - *C. Wares.*

School of Medicine
Hokkaido University
Sapporo, Japan

2735 **NITOWSKY, HAROLD M.** Prescriptive screening for inborn errors of metabolism: a critique. *American Journal of Mental Deficiency*, 77(5):538-550, 1973.

General principles which apply to mass screening programs, particularly for inborn errors of metabolism, are reviewed and some selected programs are evaluated. A screening technique, directed at the measurement of metabolites or nutrients in body fluids, should detect significant changes in the amount of the relevant substance, and alternative explanations for abnormal concentrations of metabolites in body fluids should also be considered. The screening test should be simple, highly sensitive, replicable by reliable methods, and applicable to an effective treatment method. Screening may be used for research, for protection of public health, and for some individuals or families as prescriptive screening. A knowledge of the disorder is of primary importance and adequacy of the screening procedure must be examined critically in terms of false negative and false positive results. Realistically, the cost of mass screening should be taken into account. In the case of phenylketonuria, the diagnosis should be firmly established by studies of serum phenylalanine levels in an ordinary diet prior to institution of treatment. Early diagnosis of neonatal hypercholesterolemia is urged in families which are known to have Type II hyperlipoproteinemia. Screening for heterozygous carriers is considered justified in high risk populations. (58 refs.) - *A. C. Schenker.*

2736 **ANDERS, THOMAS F.; & HOFFMAN, EILEEN.** The sleep polygram: a potentially useful tool for clinical assessment in human infants. *American Journal of Mental Deficiency*, 77(5):506-514, 1973.

Early normal or aberrant development was studied by means of the sleep polygram in 34 infants, ranging in age from 36-47 wk; 12 infants were born at term and 22 were born preterm. Results from serial sleep polygrams at weekly intervals through 46 weeks of conceptional age suggest that the inversion of the active-REM/quiet sleep ratio which occurs between 3 and 4 weeks of age in full-term infants is delayed in premature infants. The proportion of wakefulness is also retarded in premature infants of comparable conceptional ages. The different developmental courses of sleep-wake relationships manifested by the premature and full-term groups might be related either to intrinsic lags in central nervous system maturation of premature infants or to the different caretaking environments to which each were exposed. The findings suggest that the inversion of the active-REM/quiet sleep ratio is an important maturational event. Sleep studies are considered a potentially valuable neurodiagnostic procedure in infancy and early childhood. (18 refs.) - *A. C. Schenker.*

Children's Hospital
Buffalo, New York 14222

MEDICAL ASPECTS—Prevention and Etiology (General)

2737 **PENROSE, L. S.** Heredity, environment and mental subnormality. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 1, p. 7-12.

The present trend of thought in MR work is discussed in terms of results from studies of MR and their interpretation. In the early 1900's it was acceptable to divide MR into primary and secondary types; the traditional view was that the influence of nature was paramount. In numerous studies on twins, the key information concerns the degree of concordance of monozygotic twins; features that remained constant in both members of the pair, despite differences in environment, are assumed to have been determined by inborn constitution. However, in addition to the fact that twins are not the prototype for normal development, being lighter at birth and subject to influences in embryonic and fetal life which do not affect single births, they need not necessarily have common hereditary traits only. Although, in recent years, the causes and pathology of MR have been found to be related to heredity, the trend has been to emphasize the value of manipulating the environment in the interests of therapy. The present aim is to expand our knowledge of both processes and attempt to make use of nurture to defeat the errors of nature. (12 refs.) - *A. C. Schenker.*

2738 **CRUZ-COKE, RICARDO.** Genetic effects of family planning. *American Journal of Human Genetics*, 25(2):214-215, 1973. (Letter)

Several years' experience with a massive birth control program in Santiago, Chile, has produced results discordant with other reports and suggests that the effects of such programs may be much less genetically beneficial than expected. Of special concern is the observed inversion of the sex ratio in stillbirths, suggesting that prenatal selection pressures against males have been considerably affected. Also noted was an increase in anencephaly and in the proportion of primiparous mothers, thereby giving rise to more lower birthweight babies, a higher percentage of congenital abnormalities, and higher neonatal mortality rates. (7 refs.) - *N. Mize.*

Hospital J. J. Aguirre
University of Chile
Santiago, Chile

2739 **COHEN, BERNICE; GRAHAM, JOHN; & SCHULL, WILLIAM J.** Genetic effects of family planning. *American Journal of Human Genetics*, 25(2):215-217, 1973. (Letter)

The Chilean data cited by Dr Cruz-Coke in his critique of our original article on the genetic effects of family planning are interesting but have little immediate operational value. Santiago's 7-year population planning program is one of the first such efforts in which an attempt has been made to measure overall genetic impact on a population, and its interpretation necessarily suffers from being first. Our major recommendation was concerned almost exclusively with the expected decrease in age-dependent genetic disorders, such as Down's syndrome, as the maternal age distribution is shifted downward. The fact that this was not observed in the Chilean study raises the question of possible environmental influence, as Cruz-Coke himself suggests, but does not disprove the original contention. Other comments in the critique are particularly useful as reminders that the larger issue at hand—how one measures the overall impact of social engineering—is by no means resolved. (4 refs.) - *N. Mize.*

2740 **DUNCOMBE, DAVID C.; LOWELL, LOIS K.; MAHONEY, MAURICE J.; PAPAZIAN, HAIG P.; & TROPP, RICHARD.** Ethical issues in genetic screening. *New England Journal of Medicine*, 287(4):204, 1972. (Letter)

The Institute of Society, Ethics and the Life Sciences has made an important contribution to the complex discussions of ethical issues in genetic screening. However, its emphasis on safeguarding individual rights, associated with the endorsement of strictly voluntary genetic screening programs, overlooks the rights of the presently invisible people, those unborn children who may be genetically affected and those who now and in the future must pay the social costs of treatment and diverted resources. Rather than futilely posing a choice between the individual and society, the long range interests of all must be considered in making these value judgments. - *N. Mize.*

Task Force on Genetics and
Reproduction
Yale University
New Haven, Connecticut

2741 **KAPLAN, NORMAN R.** Hazard of saline abortion. *Journal of the American Medical Association*, 221(1):89, 1972. (Letter)

The growing list of hazards associated with saline abortion has given this procedure the second highest fatality rate of any elective surgical technique. Its use should be discontinued in favor of hysterectomy for late abortion. - *N. Mize.*

2742 **STENCHEVER, MORTON A.** An abuse of prenatal diagnosis. *Journal of the American Medical Association*, 221(4):408, 1972. (Letter)

A recent case in which prenatal chromosome evaluation was requested by the parents as a way of determining the sex of their unborn child points out the potential for abuse of prenatal diagnostic procedures. The 38-year-old mother originally requested the evaluation as a precaution to rule out Down's syndrome. When the patient was informed that she was carrying a chromosomally normal female child, she requested an abortion, since both parents wanted a boy. The moral and economic issues involved in this type of case

suggest a need for carefully developed guidelines to prevent such requests from becoming commonplace. - *N. Mize.*

University of Utah College of Medicine
Salt Lake City, Utah

2743 Abortion: a special demand. *Journal of the American Medical Association*, 221(4):400, 1972. (Editorial)

The special report of the Institute of Society, Ethics and the Life Sciences unfortunately avoided discussion of a key ethical issue in genetic screening: the question of abortion after amniocentesis yields evidence of fetal abnormality. Since case reports already exist of parents requesting abortion when amniotic fluid examination reveals a normal child but of an unwanted sex, the whole area of therapeutic abortion needs to be carefully re-examined. (1 ref.) - *N. Mize.*

2744 **SHENKER, LEWIS; & KANE, ROLF.** Doppler ultrasonic fetal heart monitoring during labor. *Obstetrics and Gynecology*, 39(4):609-615, 1972.

Experimental use of an external monitoring system based on the Doppler ultrasonic principle for detecting fetal heart rate has shown this technique to provide 2-channel records entirely comparable to those provided by fetal electrocardiograms. In the 20 patients in whom both the internal and external methods were employed simultaneously, the Doppler ultrasound system proved accurate, clear, free of significant artifact and easily interpreted. Other advantages of the external system include the ease with which it can be attached and operated, the fact that it can be used in all stages of labor, and its more general acceptance by both doctor and patient. (6 refs.) - *N. Mize.*

Booth Memorial Medical Center
Flushing, NY 11355

2745 American Academy of Pediatrics Committee on Youth. Counseling opportunities in human reproduction. *Pediatrics*, 50(3):492, 1972. (Editorial)

Depending on his inclinations and clinical interests, the pediatrician can take advantage of numerous counseling opportunities related to problems of human reproduction. Roles currently appropriate to the pediatric practice include genetic counseling of parents, sex education for parents and children, and sex counseling for young parents or adolescents requiring premarital advice. - *N. Mize*

2746 Special and intensive care of the newborn. *Medical Journal of Australia*, 2(2):66, 1972. (Editorial)

The recommendations put forth in the recent "Report of an Expert Group on Special Care for Babies" are generally sound and if followed up should contribute to further reductions in the perinatal mortality rate. Particularly emphasized are the importance of good antenatal care, early recognition of high risk fetuses, and expert care during labor. Adequately equipped and staffed nurseries providing special and intensive care for several hospitals in the same geographical area are preferred over the more usual small nurseries. Concentration of such facilities, as recommended, would permit a high level of expertise and open up important research opportunities. (3 refs.) - *N. Mize.*

2747 **CLARKE, A. M.; & CLARKE, A.D.B.** What are the problems? An evaluation of recent research relating to theory. In: Clarke, A.D.B. & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*, Baltimore, Williams and Wilkins, 1973, p. 3-22.

The areas of research in MR include description of MR, fact-finding surveys, prevention, and methods of amelioration. The majority of studies have described MR behavior. Difficulties arise in comparing MR with normals of equal mental age (MA), as many factors are involved in attaining MA. The chronological age (CA) match is more useful for description of behavior and educational purposes.

MR Ss are deficient in discrimination learning (due to lack of concentration), short-term memory, verbal and higher order conceptual abilities, and possibly in ability to choose task-performing strategies or in desire to succeed. Surveys of the prevalence of MR are useful in indicating changes in incidence due to social change, while follow-up studies are useful in describing the development of MR individuals. An unanswered question is the role of social causes in MR. Programs such as Headstart have not been successful because they were not focused on teaching particular skills. Infants from poor socioeconomic backgrounds who were at risk of MR appeared to benefit from a program which entailed removal from the mother and intensive sensory and language stimulation. Studies concerned with amelioration have shown that MR Ss can be taught skills which normal Ss develop spontaneously. Since there is a gap between capacity and performance, demands should be made of the MR which lead to performance that reflects true capacity, as is done in operant conditioning. Society must determine whether the benefits of training the MR justify the expense. (42 refs.) - *V. J. Goldberg.*

2748 **VEALE, A.M.O.; LYON, I.C.T.; & HOUSTON, I. B.** Multiple screening for inborn errors of metabolism in New Zealand and other countries in the Pacific Basin. *Pediatric Research*, 7(1):65, 1973. (Abstract)

Testing for inborn errors of metabolism in New Zealand is reviewed and the incidence of various conditions is reported. All newborn infants have been tested for phenylketonuria (PKU) since 1966; all babies were tested by inhibition assay for increased levels of phenylalanine, methionine, leucine, tyrosine, and histidine. Most of the babies are Europeans (90%); the others are almost entirely Polynesian. Enzyme tests for detection of galactosemia, hereditary angioedema, and α-1-antitrypsin inhibitor deficiency are also available. In 3.5 years, a total of 215,865 New Zealand babies have been tested. The incidence of PKU is 1:14,391, homocystinuria 1:107,932, histidinemia 1:10,710, and galactosemia 1:32,791. In older infants, 1 case of intermittent maple syrup urine disease, 3 of argininosuccinic aciduria, and 15 of hereditary angioedema have been detected. - *A. C. Schenker.*

Human Genetics Research Unit
Medical School
Dunedin, New Zealand

2749 **MOURANT, A. E.** ABO blood groups and abortion. *British Medical Journal*, 4(5839):547, 1972. (Letter)

In addition to fetomaternal ABO incompatibility, particular haptoglobin types and placental alkaline phosphatase types are involved in the blood group interaction and may influence not only the outcome of hemolytic disease of the full-term newborn but also the incidence of early abortion. The frequency of the Hp 1-1 phenotype is higher and that of the other types lower among the offspring in families where the father possesses an A or a B antigen not present in the mother than in those families where he does not. In cases of infants with a group B antigen not possessed by their mothers, the proportion of infants with serologic signs of hemolytic disease of the newborn is higher in those homozygous for placental alkaline phosphatase gene PI^{fl} than in those of other types; this effect is not found in cases of group A incompatibility. (7 refs.) - *B. J. Grylack.*

M.R.C. Serological Population
Genetics Laboratory
St. Bartholomew's Hospital
London E.C.1, England

2750 **RUSHTON, D. I.** ABO blood groups and abortion. *British Medical Journal*, 4(5839):547, 1972. (Letter)

The presence of congenital anomalies in abortuses cannot be used in a direct cause-and-effect argument but rather reflects a total disturbance in the conceptus which leads subsequently to failure of maintenance of an internal environment consistent with the continuance of pregnancy. The major distinctions among groups of aborted material appear to involve (1) those conceptuses with absent or stunted embryos which are associated with gross disturbances of placental structure, (2) those with a severely macerated fetus showing no major malformations and a placenta showing the features of maternal floor infarction, and (3) those with a fresh normal fetus which have seemed to be developing normally until abortion. The mechanisms of abortion in these groups apparently differ, although the first 2 seem to be dependent upon a progressive decline in placental function, while the third appears to be related to mechanical factors or to an early form of abruption. The evidence suggests that ABO incompatibility per se is not a cause of abortion but is an associated factor which may influence the mode of abortion. (3 refs.) - *B. J. Grylack.*

2751 **EMERY, ALAN E. H.; WATT, MURIEL S.; & CLACK, ENID.** Social effects of genetic counselling. *British Medical Journal*, 1(5855):724-726, 1973.

A follow-up study of 104 Ss who had received genetic counseling between 1964 and 1965 was conducted in order to provide the counselor with information regarding the effect of the counseling; to reassure the parents that research is progressing in this field; and to provide more information to the geneticist. All the Ss interviewed appeared to have appreciated the genetic implications. However, a number of couples at high risk of having a child with a serious genetic disorder were undeterred from having further children. Incidence of contraceptive failure and serious marital disharmony suggest that expert contraceptive advice should be given as well as genetic counseling. The greatest difficulty in genetic counseling was found to be the lack of biological knowledge of most couples seen in the clinic. (7 refs.) - *A. C. Schenker.*

University Department of Human Genetics
Western General Hospital
Edinburgh EH4 2HU, Scotland

2752 **RHODES, PHILIP.** Obstetric prevention of mental retardation. *British Medical Journal*, 1(5850):399-402, 1973.

The obstetrician's role in the prevention of MR is discussed. In the very early development, abortion or sterilization or both must be considered with the patient and her husband on the grounds of relative statistical risk with respect to congenital abnormalities, but in some cases results may be obtained from amniocentesis to help in making a decision. During the phase of differentiation (about 14 weeks' gestation) if the embryo is inadvertently exposed to drugs, irradiation, or viruses known to be associated with abnormality, a decision for or against termination of the pregnancy will have to be made. Between this phase and delivery, it is important to be able to detect poor growth of the fetus, in which case either the fetus can be removed from its deteriorating environment, or the placental insufficiency can be corrected. It seems preferable, in the growth-retarded fetus, to stimulate placental function rather than to deliver prematurely. The obstetrician has a very real part in the prevention of MR in the babies, and he can also help to identify those mothers whose babies may be at special psychological and social risk in their early postnatal life. (13 refs.) - *A. C. Schenker.*

St. Thomas's Hospital Medical School
London SE1 7EH, England

2753 **ALBERMAN, EVA; CREASY, MICHAEL; & POLANI, PAUL E.** Spontaneous abortion and neural tube defects. *British Medical Journal*, 4(5886):230-231, 1973.

Spontaneous abortion may be inversely related to the prevalence of neural tube defects at birth. Maternal efficiency in aborting such affected fetuses should be recorded equally with viable affected births in order to calculate the risks to a future pregnancy. Fetal chromosomal anomalies may be the predominant factor in spontaneous abortion, however, with neural tube defects relating secondarily. (2 refs.) - *C. Wares.*

Guy's Hospital Medical School
London SE 1, England

2754 **BUCK, CAROL; & STAVRAKY, KATHLEEN.** Latent morbidity after abortion. *British Medical Journal*, 3(5784):292-293, 1973.

Subsequent prematurity and/or latent morbidity after abortion is of sufficient incidence to warrant consideration in the appraisal of the risks of induced abortion. The consequences of induced abortion have been interpreted inaccurately or ambiguously in a lead article in the *British Medical Journal*, which includes errors in statistical methodology, incomplete or erroneous quotations of sources, and inappropriate references. The report is biased and inadequately referenced. (10 refs.) - *C. Wares.*

University of Western Ontario
London, Ontario, Canada

2755 **GOODHART, C. B.** Latent morbidity after abortion. *British Medical Journal*, 2(5857):51, 1973.

Yugoslavian statistics on latent morbidity after abortion do not support the conclusion that abortion does not increase the prematurity rate for subsequent pregnancies. They do show an increase in legal abortions (from 4.580 to 6.445) from 1960 to 1970 without a significant increase in prematurity rate during the same period. The figures do not show rates of induced abortion in mothers who later delivered live babies. - *C. Wares.*

Gonville and Caius College
Cambridge, England

2756 **WYNN, MARGARET; & WYNN, ARTHUR.** Latent morbidity after abortion. *British Medical Journal*, 2(5857):51, 1973.

Clinical trials of the Karman catheter in 322 patients have shown that use of the instrument is advantageous for terminating most early pregnancies but not for those which are beyond the sixth week of gestation. Important papers on sequelae of induced abortion are cited which are useful in computing a risk index for pregnancies after abortion. It is essential for women to understand the full range of risks of abortion, including latent morbidity, in order to optimize the chances of success in subsequent pregnancies. (4 refs.) - *C. Wares.*

2757 **CONLEY, RONALD W.** The etiology of mental retardation. In: Conley, Ronald W. *The Economics of Mental Retardation*. Baltimore, Maryland, The Johns Hopkins University Press, Chapter 3, p. 50-67, 1973.

The major issues concerning the relative importance of the causes of MR and the explanation of demographic differences are discussed. The uneven distribution of the prevalence of MR is probably partly due to the increased hazard of brain injury among certain demographic groups. Severe MR (IQ less than 50) usually results from brain injury or malfunction; this is suggested by the prevalence of physically disabling conditions among the severely MR and has been confirmed on the basis of autopsy reports. Differential rates of brain damage, however, cannot explain all of the differences in rates of MR among demographic groups. Alternative theories are advanced which explain differences between the races and between the socioeconomic groups with respect to intelligence. If there are genetic differences in intelligence among social classes, they are probably more pronounced among whites than Negroes for the reason that Negroes have had less opportunity to develop and take advantage of their innate capacities. (26 refs.) -*A. C. Schenker.*

2758 **ROBERTS, C. J.; & LOWE, C. R.** Obstetric prevention of mental retardation. *British Medical Journal*, 1(5853):614-615, 1973. (Letter)

The association between obstetric complications and MR is undeniable but has been statistically and definitively mishandled in a previous article. Selection of data for analysis and definitions of MR were often confused and erroneous, and experimental population bases for comparison with general population statistics in relation to obstetric care were inadequate. Otherwise, sociomedical conclusions drawn were also not supported by facts or knowledgeable opinions, and thus should be categorized as unscientific convictions only. (3 refs.) - *C. Wares.*

Welsh National School of
Medicine
Cardiff, Wales, England

2759 **BROWN, D.** Obstetric prevention of mental retardation. *British Medical Journal*, 1(5853):614, 1973. (Letter)

A significant contributing factor to MR is labor asphyxia. Scientific monitoring of labor is recommended, including the judgment on asphyxia development in prolonged labor or insufficient uteroplacental complications. - *C. Wares.*

St. John's Hospital
Chelmsford, England

2760 SYMONS, J. C. Obstetric prevention of mental retardation. *British Medical Journal*, 1(5858):119, 1973. (Letter)

Obstetric prevention of MR by observation and management according to specific criteria in regard to small-for-dates babies is criticized as insufficient to accomplish the results claimed in a previous article. It is suggested that neonatal hypoglycemia is a more primary cause of MR than is smallness-for-dates, and that improvements noted may be due to improvements in detection and treatment of neonatal hypoglycemia rather than to the obstetric management regime instituted. - *C. Wares.*

Jenny Lind Hospital
Norwich, England

2761 OGBORN, ANTHONY. Latent morbidity after abortion. *British Medical Journal*, 1(5858):114-115, 1973. (Letter)

Statistics on latent morbidity after abortion presented in a previous article are noted to be erroneously based on incidence of both spontaneous and induced abortions, thus introducing medical factors extraneous to abortion itself. Perinatal mortality in abortion-liberal Hungary is compared with that in abortion-conservative England, and the former is found to be much higher. Although increased incidence of placental insufficiency after termination has been admitted, other factors than the termination itself should also be examined. (4 refs.) - *C. Wares.*

Royal Hampshire County Hospital
Winchester, England

2762 MONAGHAN, J. M.; HORN, D. B.; & BROCK, D.J.H. Alpha^1-antitrypsin in amniotic fluid. *Lancet*, 2(7829):619, 1973. (Letter)

α^1-Antitrypsin (α^1-A.T.) concentrations were determined in 146 samples of amniotic fluid, obtained between 14 and 42 weeks' gestation, with results ranging from 7-48mg/100ml; the concept that the α^1-A.T. value is a reliable index to fetal maturity in normal pregnancy is questioned. No significant relationship was found between gestational age and α^1-A.T. concentration in amniotic fluid, nor was there a significant relationship between α^1-A.T. and lecithin-sphingomyelin ratio. Because of the large maternal contribution to amniotic fluid proteins, a knowledge of the α^1-A.T. concentration can be only a poor guide to fetal maturity and to lung function. (3 refs.) – *A. C. Schenker.*

Western General Hospital
Edinburgh EH4 2XU, Scotland

2763 PIROINEN, OLLI. Detection of fetal heart activity in first trimester. *Lancet*, 2(7827):508-509, 1973. (Letter)

Fetal heart activity detected through the abdominal wall at an early stage of pregnancy is described in a new application of the Doppler technique. The correct diagnosis of the fetal heart activity or of its absence was made in 79 cases out of a total of 99. The study was carried out with a 5 MHz Doppler instrument and with a Kretztechnik B-scanner, using a 2MHz probe. The earliest stage of pregnancy at which fetal heart activity was detected was 44 days from beginning of last menstruation. No false positives occurred. False-negative findings were obtained in 60% of the 6-week examination and in 37.5% of the 7-week examination; at 8 weeks, the accuracy of detection was 100%. (5 refs.) - *A. C. Schenker.*

University of Turku
20520 Turku 52, Finland

2764 Latent morbidity after abortion. *British Medical Journal*, 1(5853):565, 1973. (Editorial)

The results of the abortion act in Britain, as summed up by Margaret and Arthur Wynn, are discussed. The long-term effects of abortion are pointed out by Margaret Wynn, and Arthur Wynn designates latent morbidity. Both authors stress that the longer the follow-up the worse the results. A previous abortion increases the chances of a subsequent perinatal death by 50%, according to the British Perinatal Mortality Survey; in addition, there may be a 40% increase in premature births.

Young single women who have had an abortion have an increased likelihood of postpartum hemorrhage, midtrimester abortions, rhesus isoimmunization, antepartum hemorrhage, stillbirth, and congenital malformations. The Wynns have produced a very serious indictment of legalized abortion, which must be heeded by doctors and lawmakers. (2 refs.) - *A. C. Schenker.*

2765 **KABACK, MICHAEL M.** Heterozygote screening--a social challenge. *New England Journal of Medicine*, 289(20):1090-1091, 1973.

Heterozygote identification methods are discussed, and the screening for and prospective prevention of Tay-Sachs disease are delineated. In the families in which individuals have been identified with recessive disorders, carrier detection may greatly improve the accuracy of genetic counseling for unaffected relatives. In the case of Tay-Sachs disease, an accurate, simple method of carrier detection is available, using serum, leukocytes, and tear analysis of hexosaminidase A. Accurate midtrimester intrauterine detection of Tay-Sachs disease is possible; screening reproductive couples in the high-risk population should permit delineation of the one in 900 couples of which both members are heterozygotes. These couples, after appropriate counseling, could elect to have amniocentesis with each pregnancy and have only unaffected children. For informed persons who would not find the alternative (abortion) acceptable, the test may be provided premaritally to influence mate selection. Mass heterozygote screening should not be carried out until the feasibility, benefits, and potential hazards are first evaluated in carefully conducted and closely monitored pilot programs. (5 refs.) - *A. C. Schenker.*

Harbor General Hospital
Torrance, California 90509

2766 **SHINE, IAN; & LAI, S.** Need for screening as related to frequency of disease. *New England Journal of Medicine*, 289(5):273, 1973. (Letter)

It is vitally important to establish a level of frequency of disease below which it is unreasonable to screen; a frequency of 1:1,000 is suggested. It is important to know whether Motulsky's upper estimate (0.1) or lower estimate (0.06) for hemoglobin S carriers may be correct. In screening black Kentuckians for abnormal hemoglobins, the data revealed a carrier frequency that was age dependent, being about 0.04 at birth and rising linearly to 0.12 in those over 60. The predicted frequency was 0.06, entailing a homozygote frequency of 0.0009; the justification for screening thus would be somewhat marginal. (2 refs.) - *A. C. Schenker.*

T. Hunt Morgan Inst. of
Genetics, Inc.
Lexington, Kentucky

2767 **MOTULSKY, ARNO G.** Need for screening as related to frequency of disease. *New England Journal of Medicine*, 289(5):273, 1973. (Letter)

It does not seem advisable as yet to establish frequency cut-off figures for screening; the frequency of phenylketonuria is only about 1:10,000 and yet most observers favor screening for this condition. There are no medical indications for detecting carriers of sickle-cell trait in the population at large. The principal objective of sickle-cell trait in the population at large. The principal objective of sickle-cell screening is the possible prevention of sickle-cell disease by responsible genetic counseling. - *A. C. Schenker.*

University of Washington
Seattle, Washington

2768 **GLAZERMAN, LARRY R.** Screening for genetic disease (cont'd). *New England Journal of Medicine*, 289(14):754-755, 1973. (Letter)

Elimination of Tay-Sachs disease is achievable by means of screening and competent genetic counseling. It is not necessary for heterozygous Jewish parents to restrict childbearing; carrier detection, coupled with prenatal diagnosis, can allow carrier couples to bear normal children as a result of selective termination of affected pregnancies. It is true, as Dr. Rosen states, that indiscriminate screening can be hazardous if not combined with educational programs for lay and professional groups; the Tay-Sachs program takes this fact into consideration and includes such education. (6 refs.) - *A. C. Schenker.*

Jefferson Medical College
Philadelphia, Pennsylvania

MEDICAL ASPECTS – Etiologic Groupings
Infections, intoxications, and hemolytic disorders

2769 **RAINE, CEDRIC S.; & FIELDS, BERNARD N.** Reovirus type III encephalitis–a virologic and ultrastructural study. *Journal of Neuropathology and Experimental Neurology*, 32(1):19-33, 1973.

The development of central nervous system (CNS) lesions and host tissue response was studied in suckling rats inoculated with reovirus type III (Dearing strain). Out of 85 animals, all but 4 succumbed between 5 and 14 days postinoculation. The virus *in vivo* demonstrates an unequivocal preference for infecting nerve cells, the degeneration of which precedes other pathologic events. *In vitro*, it is known that the reovirus III is able to induce abnormal coated microtubules. The glial cells did not form the site for viral replication; these cells were not the coated type of microtubule and differed from normal tubules by being smaller in diameter and lacking a hollow lumen. In the present experiments the abnormal microtubules were rarely seen within neurons. Because glial cells proliferate and differentiate later than do nerve cells, their microtubular anomalies may be explained on the basis that these cells are exposed to the effects of viral genome while they are in the actively dividing state and display active synthesis of microtubular protein. The microtubular anomalies encountered in this study occurred in the absence of overt liver disease, indicating that the change was probably related to local viral infection in the CNS. (32 refs.) - *A. C. Schenker.*

Albert Einstein College of Medicine
The Bronx, New York 10461

2770 **CHOU, S. M.; ROOS, R.; BURRELL, R.; GUTMANN, L.; & HARLEY, J. B.** Subacute focal adenovirus encephalitis. *Journal of Neuropathology and Experimental Neurology*, 32(1):34-50, 1973.

A case of subacute adenovirus encephalitis in an adult is presented; the pathogens are demonstrated by electronmicroscopy and immunofluorescence on an autopsied brain. The patient, a 42-year-old white man, had a malignant lymphoma; the immediate cause of death was a diffuse pulmonary involvement and at autopsy the findings consisted of diffuse lymphosarcoma. Diagnostic histopathologic findings comprised gigantic nuclear inclusions, mineralization, and necrosis confined in the localized area of gray matter. Electronmicroscopic observations included a unique pattern of crystalline arrays, the evidence of neuronal nuclei as the principal sites of viral multiplication, the size of the virion and the number of capsomeres per virion being 252, and the characteristic components of the nuclear inclusions (37- 41). The brain lesion was grossly similar to an old focal infarct; an adenovirus closely resembling adenovirus type 32 was isolated from brain tissue. The report provides additional evidence that the reticuloendothelial system plays a crucial role in defending the central nervous system (CNS) from viral infections; the CNS involvement may have been due to impairment of virus clearance, insufficient production of antibody and interferon, and suppression of cerebral interferon from immunosuppressant therapy. (55 refs.) - *A. C. Schenker.*

West Virginia University
Morgantown, West Virginia 26506

2771 **KAUFMAN, ROBERT L.** Birth defects and oral contraceptives. *Lancet*, 1(7816):1396, 1973. (Letter)

In reference to Nora and Nora's report that a high proportion of persons with congenital anomalies, labeled VACTERL (vertebral, anal, cardiac, tracheal, esophageal, renal, limb), were exposed to progestagen-estrogen or progestagen at the vulnerable period of embryogenesis, a case is described in this context. A patient with such anomalies was investigated, although the pregnancy was reported as uncomplicated. It emerged that because of first-trimester bleeding, oral stilbestrol and i.m. progesterone, followed by i.m. hydroxyprogesterone, were given for 2 months, beginning 47

days after the last menstrual period. This finding supports an association between VACTERL and exposure to progestagen-estrogen drugs during the vulnerable period of embryogenesis. Accurate pregnancy tests should be conducted before such therapy is instituted. (5 refs.) - *A. C. Schenker.*

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2772 VICKERY, KENNETH. Coxsackie group A in oysters and mussels. *Lancet*, 1(7816):1385, 1973. (Letter)

In agreement with Dr. Dennis, the hazards arising from the consumption of infected shellfish are stressed. It is suggested that sufficient evidence exists that the gastrointestinal symptoms following the consumption of shellfish, elicited in some persons and not in others, may well be due to a predisposition to enteroviral infection, rather than an allergy. In only one instance, where the evidence implicating oysters was sufficient to initiate a radical improvement of hygienic procedures, were steps taken to counteract such hazards to health. It might well be that deteriorating environmental conditions in coastal waters and estuaries aggravated by rising population pressure are contributing factors to this health hazard, and medical advice should be firm on this subject. - *A. C. Schenker.*

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2773 DURAVETZ, J.; & MOORE, B. P. L. Australia antigen in blood-donors. *Lancet*, 1(7816):1383, 1973. (Letter)

Using the radioimmunoassay ("Ausria"), 895 sera were negative for Australia antigen (HBAg) by the C.I.E.P. technique, and 22 of these sera were selected as suspect positives. When all 22 were tested in triplicate, 7 sera that initially had given weak positive results were considered to be negative. Of the remaining 15 sera, 9 were considered to have antibody to guinea pig protein only; 5 sera were confirmed as positive by inactivation with rabbit HBAb, and 1 serum gave a doubtful reaction. Of the 22 R.I.A. positive samples, only 6 were considered to have given results specific for HBAg, an incidence of 1 confirmed R.I.A. positive in 149 C.I.E.P. negative sera. The effect of the introduction of more sensitive techniques may not be as striking as is claimed. (3 refs.) - *A. C. Schenker.*

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2774 Venezuelan encephalitis. *Lancet*, 1(7793):29-30, 1973. (Editorial)

The epidemiological characteristics of the Venezuelan encephalitis virus (V.E.E.) are reviewed. V.E.E. was first isolated from the brain of a horse which had died during the course of a major epizootic of equine disease in Venezuela. Outbreaks of equine disease due to V.E.E. have occurred in South America between 1938 and 1961, but in 1962-1963, equine disease in Venezuela was associated with some 23,000 human infections, many involving the central nervous system, with about 150 fatalities, mostly among children. Other countries, including the USA, have since been subject to such outbreaks. All the epidemic strains fall into subtype I, with further subdivisions into minor antigenic differences between strains from different outbreaks. Other subtypes (from II to IV) have been isolated, and there is some evidence that infection with V.E.E. of one subtype fails to confer protection against infection with a virus in a different subtype. Control measures have been directed against the virus by means of vaccine and against the vector. The TC-83, derived by serial propagation of a virulent subtype-I strain through 83 passages in guinea-pig heart cells, produced satisfactory immune responses. - *A. C. Schenker.*

2775 RELLER, L. BARTH. Granulomatous hepatitis associated with acute cytomegalovirus infection. *Lancet*, 1(7793):20-22, 1973.

Granulomatous hepatitis associated with proved acute cytomegalovirus (c.m.v.) infection is presented in a previously healthy 30-year-old woman. The patient demonstrated the clinical findings characteristic of c.m.v. mononucleosis: protracted fever, liver involvement, absence of pharyngitis and lymph-node enlargement, and hematological

changes similar to those seen in infectious mononucleosis (i.m.). A 16- fold or greater rise in complement-fixation (c.f.) antibodies to c.m.v. was reported when there was no change in c.f. antibodies to herpes simplex or varicella-zoster virus. The raised titers of indirect immunofluorescent-antibody technique to Epstein-Barr virus (E.B.V.) found in this patient are comparable to those seen in the endogenous reactivation of latent E.B.V. Few liver biopsies have been recorded in reported cases of c.m.v. mononucleosis and in none have hepatic granulomas been seen as in the present case. Abnormal liver function tests were found, which is characteristic of acquired c.m.v. infection. This case indicates that acquired c.m.v. should be included in the differential diagnosis of granulomatous hepatitis, especially in the case of lymphocytosis and fever of undetermined origin. (33 refs.) - *A. C. Schenker.*

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2776 ZUCKERMAN, A. J. Is hepatitis caused by viroids? *Lancet*, 1(7818):1486-1487, 1973.

A number of similarities between the structural entities of human hepatitis B antigen and plant virus proteins suggest new techniques to the medical virologist. In a number of the small plant viruses, the small particles have shorter RNA chains than the longer forms, in which neither of the 2 particle sizes nor the RNA components singly are infective (as in the cowpea mosaic virus); infection results by combination of the 2 virus particles or the 2 RNA components. A covirus concept has been proposed and extended to human hepatitis B. Another possibility relates to the agency causing disease in potatoes; because there seems to be no helper virus in the system, the RNA must rely for its replication on biosynthetic enzymes already functioning in the host; this, as well as the absence of virions, distinguishes the potato spindle tuber virus (P.S.T.V.) agent from other viral agents. These agents may be called viroids. The mechanisms involved in RNA replication in P.S.T.V. may be by the normal RNA-biosynthetic mechanisms of the cell, or that in which replication is independent of DNA. (9 refs.) - *A. C. Schenker.*

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2777 REYNOLDS, DAVID W.; STAGNO, SERGIO; HOSTY, THOMAS S.; TILLER, MARY; & ALFORD, CHARLES A. Maternal cytomegalovirus excretion and perinatal infection. *New England Journal of Medicine*, 289(1):1-5, 1973.

A longitudinal and virologic study of a group of young pregnant mothers is presented dealing with maternal infection in the genesis of *in utero* and postnatal cytomegalovirus infections. The Ss were predominantly young (19.7 years), black (92%), unmarried (56%), and primiparous (54%). Cytomegalovirus was recovered from 64 of 513 women. None of the infants born to infected mothers or 71 control neonates shed virus at birth; placentas were also negative. Only one of the 8 infants born to mothers who excreted virus from the cervix during the first or second trimester (but not near term) became infected. However, 11 of the 30 infants (37%) born to third-semester cervical excreters became infected. In 14 (57%), the infection rate increased postpartum. Invasion, initial replication and probably bloodstream dissemination of virus seem to proceed in the face of appreciable levels of maternal antibodies. Later, although the infant is producing considerable antibody, virus excretion from the throat and urine continues for long periods, just as it does in congenitally infected infants who are also producing their own antibody. (22 refs.) - *A. C. Schenker.*

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2778 C.M.I. in the C.M.S. *Lancet*, 2(7828):541-542, 1973. (Editorial)

The role of cell-mediated immunity (C.M.I.) in the host's response to infections of the central nervous system (C.N.S.) is discussed. Normally the blood/brain barrier is impermeable to large molecular weight immunoglobulins and is only slightly permeable to small molecular weight immunoglobulins. Recent evidence strongly suggests that during an infection immunoglobulins in the C.N.S. are synthesized and excreted from immunologically competent cells, usually situated in the perivascular cuffs. C.M.I. almost certainly plays a vital role in the host's response to infections of the C.N.S. and penetration of the blood/brain barrier; it is both protective and damaging. The successful mounting of C.M.I. in mice, against a virus, was

found to be more damaging than the virus itself, whereas in infections such as poliomyelitis most of the damage is done by primary viral cytolysis, and C.M.I. is largely protective. The C.M.I. is best regarded as a type-IV reaction; basically it concerns the destruction or damage of target cells (tumor cells, allograft normal cells, or host cells that have acquired a new antigen). The type-IV reaction can present all 4 types of the allergic reaction because of the presence of antibody-producing blast cells. (20 refs.) - *A. C. Schenker.*

2779 **LORD, RALPH A.; GOLDBLUM, RANDALL M.; FORMAN, PHILIP M.; DUPREE, ELTON; STOREY, WRAY D.; & GOLDMAN, ARMOND S.** Cerebrospinal-fluid IgM in the absence of serum-IgM in combined immunodeficiency. *Lancet*, 2(7828):528-529, 1973.

The presence of an immunoglobulin with a molecular weight greater than 170,000 daltons in cerebrospinal fluid (C.S.F.) is reported in a patient with an apparently intact blood/brain barrier. The patient was a 17-year-old white male who, at age 12, was found to have panhypogammaglobulinemia; monthly injections of gammaglobulin were begun. At age 16, he developed a progressive encephalopathy, which was intermittently accompanied by elevated proteins and lymphocytes in the C.S.F. In the patient's serum, IgG was 50mg/100ml and IgM and IgA were undetected; in the C.S.F., IgM was 16mg/100ml and IgG and IgA were undetected. The IgM appeared immunologically identical to normal serum IgM, and by gel filtration it appeared that the C.S.F. IgM migrated as a polymer. The findings in this patient, although not confirmed at autopsy by brain tissue examination, suggest that synthesis of IgM was restricted to lymphoid cells in the central nervous system. (16 refs.) - *A. C. Schenker.*

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2780 **HORTA-BARBOSA, LUIZ; HAMILTON, REBECCA; FUCILLO, DAVID A.; HOGAN, DAVID; SEVER, JOHN L.; & GERIN, J.** Progressive multifocal leukoencephalopathy. *New England Journal of Medicine*, 286(19):1060, 1972. (Letter)

Recent laboratory attempts to cultivate and identify the papovavirus associated with progressive multifocal leukoencephalopathy (PML) have failed to duplicate the findings of Weiner *et al.*, who reported having successfully isolated an SV40-related virus from patient brain specimens in 2 cases. The papovavirus isolated from our carefully prepared brain specimens obtained at the autopsy of 2 well-documented PML patients failed to substantiate Wiener's finding and showed no positive reaction with SV40. - *N. Mize.*

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2781 **WEINER, LESLIE P.** Progressive multifocal leukoencephalopathy. *New England Journal of Medicine*, 286(19):1060, 1972. (Letter)

The failure to cultivate viruses from the brains of patients with progressive multifocal leukoencephalopathy has been experienced by several laboratories and may be related to methodological and technical problems. Chances of success may be improved by abandoning CsCl banding, which tends to disrupt the integrity of the virions, and by using spongioblast-containing cultures to enhance recovery opportunities. Other reported differences in agent density and immunofluorescence studies suggest the presence of an agent more akin to the Wisconsin isolate than to SV40. (3 refs.) - *N. Mize.*

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2782 **GLASGOW, LOWELL.** Interaction of viruses and bacteria in host-parasite relations. *New England Journal of Medicine*, 287(1):42-43, 1972.

Scientific understanding of virus/bacteria interaction in the complex host-parasite relationship remains poorly defined, both with respect to infection and to disease. That viruses may predispose to bacterial infection has long been accepted. Only recently, however, have researchers begun to distinguish the processes of colonization or infection with a microorganism from the production of disease by that agent in a colonized host. Preliminary reports tend to suggest that the determinants of disease and infection are not the same, but the extreme complexity of the problem demands further research. (4 refs.) - *N. Mize.*

2783 Rubella, juvenile rheumatoid arthritis appear linked—but how? *Journal of the American Medical Association*, 219(8):979-980, 1972.

Serum antibody titers to rubella virus in 31 children (ages 3 to 15 yrs) with juvenile rheumatoid arthritis were found to be 4 to 6 times higher than those of normal children with a history of natural rubella infection, in a recent NY study. The arthritic children had not been vaccinated for rubella. Antibody titers in a group of 10 children who developed episodes of rubella vaccine arthritis following immunization with HPV-77 vaccine were 4 times higher than controls. Significantly, the highest rubella antibody titers were seen in children with the most severe juvenile rheumatoid arthritis and were associated additionally, with length of illness. The precise mechanism involved in this association is still a matter of speculation. - *N. Mize.*

2784 Herpesvirus injections cause arthritis in rabbits. *Journal of the American Medical Association*, 219(8):980, 1972.

A chronic erosive arthritis has been found in a group of rabbits following injection of herpes simplex virus into the left knee joints. As compared to a group of control animals who received only injections of cell culture medium, the experimental animals, including those challenged a second time with the virus, showed moderate to severe synovitis in the injected knee and synovitis of a milder but florid type in the noninjected contralateral knee. - *N. Mize.*

2785 New Guinea find spurs search into 'slow viruses'. *Journal of the American Medical Association*, 219(11):1405-1409, 1972.

Recent studies of kuru, a "slow virus"-caused degenerative brain disease confined to a small cannibalistic tribal population in New Guinea, are opening up further research opportunities in the investigation of other possible virally transmitted encephalopathies, such as Alzheimer's disease, senile dementia, and Jakob-Creutzfeldt disease. Using animal models, the long incubation period viruses associated with kuru and the various encephalopathies are being investigated. So far no antibodies to these viral particles have been discovered, and the viruses have proven resistant to ultraviolet radiation. - *N. Mize.*

2786 **HOUSE, ROY F., JR.; PERSON, DONALD A.; SMITH, THOMAS F.; & HARRIS, LLOYD E.** Cytomegalic inclusion disease treated with idoxuridine and novobiocin. *Lancet*, 1(7793):39-40, 1973. (Letter)

A report that novobiocin enhanced the antiviral activity of idoxuridine (5-iodo-2'-deoxyuridine) against herpes simplex and vaccinia viruses *in vitro* prompted the use of this combined therapy in cytomegalic inclusion disease (C.I.D.) in a 1-day-old white male infant. This patient was ideal for antiviral chemotherapy; he had severe disease without irreparable damage to the central nervous system. Therapy was specifically directed to protecting the central nervous system, allowing repair of visceral damage, and inhibiting viral replication and excretion. No serious complications arose. The use of idoxuridine alone, as reported in the literature, has met with limited success. In this case, although the head circumference was small at birth, it was in proportion to birthweight, and it was not until later that it emerged that the patient was truly microcephalic. (7 refs.) - *A. C. Schenker.*

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2787 **MELONI, T.; DORE, A.; CAREDDU, G.; & CUTILLO, S.** Oxytocic agents and neonatal hyperbilirubinemia in G.-6-P.D.-deficient newborns. *Lancet*, 1(7793):43, 1973. (Letter)

The effect of oxytocic agents on glucose-6-phosphate dehydrogenase (G.-6-P.D.) deficient newborns, who are particularly predisposed to hyperbilirubinemia, was investigated to determine whether oxytocic agents play a role in increasing the serum bilirubin levels. The Ss comprised 101 mature male newborns whose mothers were G.-6-P.D. deficient; 14 of these women had been given oxytocic agents during labor. Ten of the 14 newborns had normal bilirubin levels; 4 had hyperbilirubinemia, and exchange transfusions were performed. It is submitted that this ratio (4/14) is no greater than the incidence of hyperbilirubinemia in infants of untreated mothers. (2 refs.) - *A. C. Schenker.*

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2788 HINDEMANN, P. Maternofetal transfusion during delivery and Rh-sensitisation of the newborn. *Lancet*, 1(7793):46, 1973.

The question whether IgG-anti-D prophylaxis is indicated in Rh-negative newborn with Rh-positive mothers is discussed. It has been shown that in up to 5.6% of all Rh-sensitized women who have not had an abortion or transfusion, Rh antibodies were already present in the first Rh-dissonant pregnancy, and anti-D-prophylaxis would be too late. These antibody findings in Rh-negative primiparas are thought to be associated with the current Rh-positive pregnancy. The investigation was undertaken to see whether, in these women, the antibody production originates a generation earlier, in a heterogeneous mother/child relationship of the mother herself. The blood of Rh-negative newborns with Rh-positive mothers was examined for maternofetal transfusion, and the blood of the babies was examined 6 months after birth for antibodies. Rh-antibodies were demonstrated in the blood of Rh-negative babies in the proportion of about 5%. - *A. C. Schenker.*

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2789 LOUGHNAN, PETER M.; GOLD, HUGO; & VANCE, JOHN C. Phenytoin teratogenicity in man. *Lancet*, 1(7794):70-72, 1973.

Since phenytoin administration during pregnancy in mice has been shown to influence both the type and frequency of malformation, the effect of pregnancy on phenytoin levels in women was investigated. Seven infants with similar minor skeletal abnormalities were born to mothers taking phenytoin throughout pregnancy. Two of the mothers had symptoms of phenytoin toxicity during the early months of pregnancy; in one mother this was severe and a serum level of 32.4 μg/ml was recorded at 14 weeks' gestation. It is recommended that serum phenytoin levels be monitored and controlled in women of childbearing age until the role of phenytoin in human malformation be further evaluated. (29 refs.) - *A. C. Schenker.*

Royal Children's Hospital
Melbourne, Australia

2790 Subclinical lead poisoning. *Lancet*, 1(7794):87, 1973. (Editorial)

Subclinical neurotoxic effects of lead poisoning, particularly in children, are discussed. Clinical lead poisoning is widely believed not to occur with blood levels below 80μg/100ml, but it does not follow that lower levels are without effect. Heme synthesis may be impaired in the absence of symptoms; erythrocyte δ-aminolevulinic dehydratase (A.L.A.D.) is partially inhibited at lead levels as low as 20μg/100ml or less. It has been suggested that hyperactivity in children and subclinical brain damage in lead workers may appear in the absence of overt poisoning. Lead workers have shown various clinical abnormalities in comparison to unexposed controls, such as slowness of performance, psychomotor disturbances, slight intelligence defects, and personality changes. Further research in this area is urged, especially in the interpretation of dose-response relationships. (12 refs.) - *A. C. Schenker.*

2791 DUNN, G. F. NEWTON; & *WORMALD, P. J. Influenza-A Hong Kong vaccine and the new variant a/Eng/42/72. *Lancet*, 1(7794):95, 1973. (Letter)

Data are submitted to show that the Hong Kong strain of vaccine gave good prophylactic protection against an outbreak caused by the same strain, but such protection was negligible against the new variant A/Eng/72. Vaccine containing A2/Hong Kong/68 was used on 88 girls; 25 days later influenza due to the Hong Kong strain broke out. The attack rate was much less among the vaccinated than the unvaccinated. In another outbreak, due to the A2/Eng/72 variant, the protection against this variant offered by the Hong Kong/68 strain was slight. In the first epidemic, muscular pains and sore throats were not prominent; in the second, muscular pains were completely absent, but sore throats were common. Among the unvaccinated girls, the attack rate in the second epidemic was only half that in the first, suggesting that the new variant is less communicable. - *A. C. Schenker.*

*Salisbury Public Health Laboratory
Odstock Hospital
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2792 **SCHLESINGER, STEPHEN; MACGILLIVRAY, MARGARET H.; & MUNSCHAUER, RICHARD W.** Acceleration of growth and bone maturation in childhood thyrotoxicosis. *Journal of Pediatrics*, 83(2):233-236, 1973.

The effects of childhood thyrotoxicosis on linear growth and bone maturation are discussed in 8 patients with onset of disease prior to age 7 years; effects of therapy are evaluated. Bone maturation was advanced in all 8 hyperthyroid patients; of the 5 girls evaluated before therapy, all had bone ages above the mean; the mean bone age/CA ratio for all 8 patients was 1.55. In the followup of 5 patients, there was evidence of improved normalization of the bone age/height ratio. The findings indicated proportionate advancement of this phase of growth. (20 refs.) - *A. C. Schenker.*

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2793 **CONVERSE, GEORGE M.; GWALTNEY, JACK M., JR.; STRASSBURG, DAVID A.; & HENDLEY, J. OWEN.** Alteration of cerebrospinal fluid findings by partial treatment of bacterial meningitis. *Journal of Pediatrics*, 83(2):220-225, 1973.

Analysis of cerebrospinal fluid (CSF) was conducted in 79 partially treated and untreated children with acute meningitis in order to develop guidelines for distinguishing between bacterial and aseptic disease. Prior to diagnosis, 41 (52%) had received no antibiotic; 22 of these had bacterial meningitis and 19 had aseptic meningitis. Of the partially treated 38 patients, two-thirds had received a penicillin preparation; the remainder received a variety of antibiotics. Children with bacterial meningitis had a higher proportion of polymorphonuclear neutrophils (PMNs) in the CSF than those in the aseptic category; in the partially treated group, 2 patients with positive bacterial cultures had less than 60% PMNs, whereas two-thirds of those with negative cultures had more than 60% PMNs. CSF glucose values in patients with bacterial meningitis ranged from <10 up to $\geqslant 100$mg%; these values were similar in the partially treated groups. The findings support the opinion of Wheeler that there is a small but important group of patients with bacterial meningitis in whom prior antimicrobial therapy may significantly alter CSF values by the time of examination; it is therefore safer to treat all cases with antibiotics. (12 refs.) - *A. C. Schenker.*

2794 **HONG, RICHARD.** Effects of toxoplasmosis. *Journal of Pediatrics*, 83(1):182-183, 1973.

Experiments employing immunofluorescent reagents are discussed in terms of the reliability of results obtained by various preparations. To be truly informative, such experiments depend upon the ability to develop multiple controls and to have a thorough understanding of the reagents employed. The variability of commercially available antibodies to IgG has recently been demonstrated; others have found pitfalls in the utilization of fluorescent methods to detect IgM antibodies directed against toxoplasma. The antisera employed to detect congenital toxoplasmosis were shown to give different results, the reason for the nonspecificity not being clear. In their paper, Griscelli and colleagues showed that the gamma G of the restricted heterogeneity is not toxoplasma antibody and therefore may represent a nonspecific genetic expression of the immune response of the individual to a rather large antigenic load. It is tempting to postulate that in the affected infants an appropriate stimulus at an appropriate time in a susceptible individual resulted in this unique expression of the disease. (10 refs.) - *A. C. Schenker.*

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Madison, Wisconsin

2795 **GRISCELLI, CLAUDE; DESMONTS, GEORGES; GNY, BLANDINE; & FROMMEL, DOMINIQUE.** Congenital toxoplasmosis: fetal synthesis of oligoclonal immunoglobulin G in intrauterine infection. *Journal of Pediatrics*, 83(1):20-26, 1973.

The serum of 20 newborn and 7 older infants (1-4 mos) was examined for abnormalities of the immunoglobulins associated with clinical signs of congenital toxoplasmosis. Electrophoresis on cellulose acetate membranes revealed a spike in 11 cases suggestive of the M-component; the individual spikes differed in their electrophoretic mobility, being predominantly of medium gamma mobility. Immunoelectrophoretic analyses of these 11 sera revealed that the M-component belonged to the IgG class. The absence of a spike in maternal sera is taken as evidence of synthesis by the fetus of the M-component. The persistence of these M-components over periods of more than 3

mos is strong evidence against passive transfer from mothers to infants. No antitoxoplasma antibody activity could be assigned to the M-components. Because in congenital toxoplasmosis the greatest hazard to the fetus exists when infection occurs around the second trimester of pregnancy, both IGM- and IgG-producing systems could be involved in the immune response, the latter reacting to stimulation by recruitment and proliferation of a limited number of clones of cells. (32 refs.) - *A. C. Schenker.*

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2796 **REMINGTON, JACK S.; & DESMONTS, GEORGES.** Congenital toxoplasmosis: variability in the IgM-fluorescent antibody response and some pitfalls in diagnosis. *Journal of Pediatrics*, 83(1): 27-30, 1973.

Discrepancies obtained with different fluorescein-tagged antibody preparations are pointed out, and what appears to be a variability is described in the IgM antibody response in congenital toxoplasmosis. A comparison of 2 fluorescein-conjugated IgM antisera in normal and congenitally infected infants with high antibody titer revealed a number of false positive results. Among the 18 infants tested, 6 had congenital toxoplasmosis. Twenty sera were tested and all gave positive results with AS1, whereas only 5 were positive with AS2 (2 different commercial antisera); the latter were true positives. Variability in the IgM response in infants with congenital toxoplasmosis is also pointed out. Some infants had demonstrable IgM antibodies in the first days after birth which persisted for months or disappeared earlier; others had no IgM-fluorescent antibody demonstrable in the first days of life. When using the IgM-fluorescent antibody test for diagnosis, one must be aware that specific IgM antibodies may be lacking. (7 refs.) - *A. C. Schenker.*

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2797 **FARQUHAR, JOHN D.** Experience with rubella and rubella immunization in institutionalized children. *Journal of Pediatrics*, 83(1):51-56, 1973.

The spread of rubella virus through an inst population in which 91% of the residents had a measurable titer of hemagglutination-inhibiting (HAI) antibodies is described. From a total of 238 children aged 1-10 years, it was determined that 25% lacked HAI antibodies. After obtaining parental permission, 38 of the 59 seronegative children were given the Cendehill rubella vaccine; the remaining 21 were not vaccinated. The rubella HAI antibody titers were done on sera collected from the vaccinees at various intervals over 4 years: after 4 years in the case of the naturally immune children and after 2 and 4 years in nonvaccinated, rubella-susceptible children. Four of 29 vaccinees and 5 of 19 naturally immune children had a fourfold or greater rise in HAI antibody titers, suggesting subclinical reinfection with natural rubella virus; 4 of 16 previously seronegative, nonvaccinated children developed HAI antibodies. The seroepidemiologic evidence strongly suggested that natural rubella spread through the 3 pediatric buildings of the inst in spite of the fact that about 90% of the population was supposedly immune. (26 refs.) - *A. C. Schenker.*

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2798 **GARBAGNATI, ERSILIA; & MANITTO, PAOLO.** A new class of bilirubin photoderivatives obtained in vitro and their possible formation in jaundiced infants. *Journal of Pediatrics*, 83(1):109-115, 1973.

The structure of a new class of bilirubin photoderivatives which were obtained *in vitro* is reported; possible mechanisms for the detoxification of bilirubin during phototherapy are suggested. When unconjugated bilirubin was irradiated in pure chloroform or in aqueous solution with or without oxygen, a number of unidentified products, principally verdinoid pigments, were found. With the addition of methanol or ethanol to a chloroform solution of bilirubin, photoadducts were isolated; this was also the case when the irradiation of bilirubin was carried out in chloroform containing N-acetyl-L-cysteine. It is suggested that the photochemical addition of nucleophils to bilirubin can occur *in vivo* during phototherapy; nucleophilic groups (-OH, -SH) are widely distributed in the body. It is also suggested that the difference in degree of response to light treatment between jaundiced infants may be related to deficiency of nucleophils, such as albumin and glucose, in premature infants and reduced gluta-

thione in infants with Rh or ABO incompatibility. (19 refs.) - *A. C. Schenker.*

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2799 **ISENBERG, J. NEVIN; & FISCH, ROBERT O.** Double-light phototherapy for neonatal hyperbilirubinemia. *Journal of Pediatrics*, 83(1):116-118, 1973.

Serum bilirubin levels in newborn infants were found to be controlled more effectively by increasing the skin surface area exposed to fluorescent illumination; a typical example of the method used is described. The infant described was closely monitored during the entire exposure to illumination; pulse rate, respirations, and temperature were stable, and there were no abnormal changes in the skin. It should be noted that the effectiveness of fluorescent light therapy depends chiefly on penetration of skin surface area in addition to intensity of radiation, absorption, and duration of exposure. The most appropriate of the available light sources applied to maximal skin surface would appear to be optimal for newborn infants who are exposed to phototherapy. (8 refs.) - *A. C. Schenker.*

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2800 **PRITCHARD, JACK A.** Treatment of toxemia of pregnancy. *New England Journal of Medicine*, 286(1):48, 1972. (Letter)

It is to be hoped that Sokal's recent report ascribing the "meconium-plug syndrome" to the effects of magnesium sulfate administered to the mother shortly before delivery will not lead to the abandonment of this drug which, in our experience, is of proven value in the prevention and control of maternal convulsions associated with eclampsia. Most notably the authors failed to account for the possible effects of drug combination, since at least 4 other drugs were administered in large dosages on the day prior to delivery. Additionally, in only 2 of 22 meconium plug cases previously reported had the mother received magnesium sulfate. (3 refs.) - *N. Mize.*

University of Texas Southwestern
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Dallas, Texas

2801 **KOENIGSBERGER, M. RICHARD.** Treatment of toxemia of pregnancy. *New England Journal of Medicine*, 286(1):48, 1972. (Letter)

The recent report of a possible etiologic association between magnesium sulfate administered shortly before delivery to the pregnant woman and the meconium plug syndrome was not intended as an indictment of this drug as a therapeutic agent for toxemia. Despite the fact that several other drugs were administered simultaneously, however, magnesium sulfate was thought most likely to be involved because of the suppressed peripheral myoneural function observed in 2 of the patients. - *N. Mize.*

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New York, New York

2802 **HAYES, KATHLEEN; DANKS, DAVID M.; GIBAS, HALINA; & JACK, IAN.** Cytomegalovirus in human milk. *New England Journal of Medicine*, 287(4):177-178, 1972. (Letter)

The recent isolation of cytomegalovirus from the breast milk of 17 of 63 seropositive women (27%) identifies this as another potentially important source of CMV infection in the infant. Previously, CMV was thought to occur only rarely in breast milk. The more sensitive isolation techniques used in this study, however, have revealed the higher secretion rate and have additionally shown this to be associated with the social class of the women involved. (14 refs.) - *N. Mize.*

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Parkville, Victoria 3052, Australia

2803 KRUGMAN, SAUL; MURIEL, GLORIA; & FONTANA, VINCENT J. Combined live measles-rubella vaccine. *American Journal of Diseases of Children*, 123(5):518, 1972. (Letter)

Results from our previous study of immunological response in 40 seronegative infants inoculated with a combination live measles, mumps, and rubella vaccine have been recently supplemented by studies of 37 infants receiving only a measles/rubella combination vaccine. Findings in both instances were similar, showing that the two combination vaccines were well tolerated, immunogenic, and presented no interference problems. (2 refs.) - *N. Mize.*

2804 DROUHET, VICTORIA; *DAO, VAN LAN; & NETTER, ROBERT. Development of antigen during the course of serum hepatitis. *American Journal of Diseases of Children*, 123(4):320-321, 1972.

When examined by immunodiffusion and by electron microscopy, a series of serum samples from 18 cases of acute hepatitis associated with the Au-antigen showed the three typical antigen forms: small spherical particles, large double-coated particles, and tubular forms. The small spherical particles were most common; least frequent were the large double-coated particles. Overall, the electron microscope proved slightly more sensitive than agar gel diffusion in the Au-antigen detection. (7 refs.) - *N. Mize.*

*Laboratoire des Actions de Sante
75-Paris 14, France

2805 STEIN, O.; FAINARU, M.; & *STEIN, Y. Virus-like particles in the cytoplasm of the livers of Australia antigen carriers. *American Journal of Diseases of Children*, 123(4):313-314, 1972.

Electronic microscopy of cell sections obtained by percutaneous liver biopsy from 5 healthy Au-antigen carriers revealed virus-like particles of approximately 30nm in the cisternae. Since this size corresponds to that of larger particles sometimes seen in the sera of Au-antigen carriers, it is likely that these particles found in the cytoplasm represent the intrahepatic form of the hepatitis virus. (6 refs.) - *N. Mize.*

*Hebrew University–Hadassah
Medical School
Jerusalem, Israel

2806 McCANDLESS, ANNE E.; & SYKES, R. M. Severity of rhesus haemolytic disease. *British Medical Journal*, 3(5825):528, 1972. (Letter)

In predicting the severity of Rh-hemolytic disease, physicians should be especially alert to the dangers of feto-maternal bleeds. Five years' experience with screening the mother's blood for fetal cells immediately before and after amniocentesis and then again 24 hours later has shown this practice to be helpful in determining the best time for labor induction. - *N. Mize.*

Sefton General Hospital
Liverpool L15 2HE, England

2807 GOLDWATER, STANLEY. Vaccination against rubella. *British Medical Journal*, 1(5794):250, 1972. (Letter)

Several years' experience with offering rubella vaccine to all women seeking contraceptive advice has shown this to be an ideal occasion for rubella prophylaxis. At the regular follow-up visit, the physician can be assured that the patient is not pregnant. This inexpensive alternative is more practical than serological screening programs and should be offered to all women at risk. - *N. Mize.*

2808 DEMIAN, SABA D. E.; DONNELLY, WILLIAM H., JR.; & MONIF, GILLES R. G. Coexistent congenital cytomegalovirus and toxoplasmosis in a stillborn. *American Journal of Diseases of Children*, 125(3):420-421, 1973.

Two coexisting infections, congenital cytomegalovirus and toxoplasmosis, were identified in a stillborn male infant delivered at 37 weeks gestation. Serological studies indicated probable first trimester involvement of the fetus by both organisms. The demonstration of concomitant infection within the same cell may indicate a

biological symbiosis between certain viruses and *T. gondii* having an additive effect on the developing fetus. (6 refs.) - *N. Mize.*

University of Florida
School of Medicine
Gainesville, Florida 32601

2809 LEDGER, WILLIAM J.; & HEADINGTON, JOHN T. Group A β-hemolytic streptococcus. *Obstetrics and Gynecology*, 39(3):474-482, 1972.

Because of the decreased physician familiarity with clinical patterns of streptococcal disease in recent years, 6 cases of severe pelvic infection attributable to group A β-hemolytic streptococcus are reviewed. The distinctive features of this disease in obstetric and gynecologic patients, as observed over an 18 month period in a Michigan hospital, include early postoperative or postpartum onset of high spiking fevers, sepsis, tachycardia, and poor localization of pelvic and abdominal pain. The primary basis for control of this potentially virulent infection is prevention and isolation of the infected patient. Penicillin is the antibiotic of choice, with kanamycin as a possible supplement for resistant strains. (9 refs.) - *N. Mize.*

University of Michigan Medical
Center
Ann Arbor, Michigan 48104

2810 AMSTEY, MARVIN S.; HOCHBERG, CHARLES J.; CHOATE, JOHN W.; WAX, STUART H.; & LUND, CURTIS J. Comparative analysis of amniotic fluid bilirubin. *Obstetrics and Gynecology*, 39(3):407-410, 1972.

Comparative analyses of amniotic fluid optical densities using both the Ovenstone and the conventional Liley method have shown the 2 approaches to be essentially complementary means for determining the proper course of fetal management. While the analysis of 324 amniotic fluid samples from 94 Rh-sensitized patients showed the newer Ovenstone method to yield slightly fewer false negatives and a more easily interpreted spectrophotometric tracing, it is the accuracy provided by the combination of the two coupled with the operation of a complete fetal diagnostic unit which is responsible for an increase in the fetal salvage rate from 57 to 75%. (7 refs.) - *N. Mize.*

2811 Blood lead test designed for mass screening. *Journal of the American Medical Association*, 221(2):132-133, 1972.

A new microtechnique for determining blood lead levels requires only a finger prick to draw blood and a few minutes for processing. For greatest accuracy, each blood sample is tested 4 times; the averaged reading is at least as accurate as the best results achieved via the conventional and more cumbersome venipuncture test. This new technique makes mass screening for the detection of lead poisoning a realistic possibility. - *N. Mize.*

2812 Lead hazard is "ubiquitous" in substandard housing. *Journal of the American Medical Association*, 221(2):131-132, 1972.

A survey of specific high-risk neighborhoods in 27 American cities has found potentially toxic lead paint levels in at least 48% of all substandard houses tested. Cities were deliberately selected from among those with few, if any, lead poisoning cases reported and with no previous lead detection programs. A total of 2,309 children aged 1 to 6 yrs were tested for lead levels by the finger stick technique. The results in a representative sample were confirmed by the venipuncture technique. Nine percent had blood lead levels over 40μg/100ml. Overall, the amount of flaking paint, the incidence of high lead paint, and the number of children with a history of pica were similar for both black and white children. The significant difference in actual blood lead levels, however, with 10% of nonblack children showing elevated levels as compared to 32.9% among blacks, argues strongly for child-based as opposed to housing-based detection programs, since the latter figures are essentially nonpredictive. - *N. Mize.*

2813 New test measures lead levels indirectly. *Journal of the American Medical Association*, 221(2):133, 1972.

A simple and reliable technique for determining blood lead levels has been developed based on the measurement of free erythrocyte porphyrins (FEP) in red blood cells. The new test requires only 20 μl blood, which can be gotten from a finger prick and processed in just 1 minute. These features make the FEP test eminently suitable for mass screening of children ages 1 to 6 yrs. - *N. Mize.*

2814 Childhood hypoglycemia. *British Medical Journal*, 1(5791):5, 1972. (Editorial)

While there are many causes of newborn convulsions, hypoglycemia is one of the most potentially damaging, carrying with it the risk of severe brain damage in survivors, including MR, spasticity, and fits. Since the treatment and prognosis for hypoglycemia in infants and children depend on the cause, early and accurate diagnosis is essential. Symptoms are nearly always present if the hypoglycemia is due to fructosemia, galactosemia, islet cell tumor, adrenogenital syndrome, or sensitivity to leucine. Babies of diabetic mothers are especially vulnerable. In cases of ketotic hypoglycemia, on the other hand, symptoms are less apparent, with the child rarely presenting before the first year, and then exhibiting only nonspecific fits and early morning drowsiness. (10 refs.) - *N. Mize.*

2815 O'DRISCOLL, DIARMUID. Oxytocic agents and neonatal hyperbilirubinemia. *Lancet*, 2(7787):1150, 1972.

The frequent occurrence of neonatal jaundice in apparently normal full-term babies weighing over 5 lb may possibly be related to the oxytocin drip infusion administered in about 30% of cases to stimulate labor. Of 26 mothers whose hyperbilirubinemic infants weighed over 7 lb, 11 (42%) had received an oxytocin drip. - *N. Mize.*

County Hospital
Wexford, Eire

2816 NORTHROP, ROBERT L.; GARDNER, WILLIAM M.; & GEITTMANN, WILLIAM F. Rubella reinfection during early pregnancy. *Obstetrics and Gynecology*, 39(4):524-526, 1972.

An instance of clinically apparent rubella reinfection occurring during the 7th week of pregnancy was followed by the recovery of rubella virus from the therapeutically aborted fetus 4 weeks later. This case, in which the affected woman first presented with a rash and wrist arthritis and with a rubella HI antibody titer of 20, strongly suggests that reinfection in pregnant women with a low level of serum antibodies is a potential hazard to the developing fetus. Isolation of rubella virus from the products of conception provided clear evidence that viremia and disseminated infection, including intrauterine infection, had occurred. (9 refs.) - *N. Mize.*

2817 LAITINEN, OSSI; & VESIKARI, TIMO. Chronic hepatitis with very high rubella and measles virus antibody titres. *Lancet*, 2(7787):1141, 1972. (Letter)

A previously healthy 24-year old male student who fell acutely ill was discovered to have chronic active hepatitis and very high antibody titers to both measles and rubella viruses, with no history of recent rubella or measles infection. The association is interesting since the 2 viruses are taxonomically unrelated and show no serological cross-reactivity. Whether the raised viral antibody levels are due to atypical viral infection or to atypical immune response in the host has yet to be determined. (7 refs.) - *N. Mize.*

University of Helsinki
00290 Helsinki 29, Finland

2818 DESMYTER, J. Absence of non-acute rubella IgM antibodies in chronic hepatitis and rheumatoid arthritis. *Lancet*, 2(7787):1141-1142, 1972. (Letter)

To determine whether rubella IgM antibodies, normally present only in the first weeks after acute rubella infection, could persist or recur in chronic diseases unrelated to rubella, sera samples from 30 patients with chronic hepatitis and from 18 patients with rheumatoid arthritis were subjected to a centrifugation IgM test. All sera chosen had rubella hemagglutination-inhibition antibody titers of 64 to 4096. No qualitative change in the rubella antibody response of "non-acute" rubella IgM antibodies was observed, suggesting that the specificity of the IgM test in the diagnosis of acute rubella is not impaired and that the test may continue to be used with confidence where the question of therapeutic abortion is involved. (5 refs.) - *N. Mize.*

Viral Disease Laboratory
B-3000 Leuven, Belgium

2819 WASHBURN, THOMAS C. Treating jaundice in neonates. *Journal of the American Medical Association*, 219(2):220, 1972. (Letter)

The problem of managing the jaundiced infants of breast feeding mothers can be substantially resolved by alternating breast milk and cow milk formulas. Where tried, this regimen has worked satisfactorily, allowing the bilirubin level to fall without other treatment, and has yielded distinct psychological benefits to the mother. - *N. Mize.*

2820 OXBURY, J. M.; MATTHEWS, W. B.; & MACCALLUM, C. Herpes simplex and temporal lobe epilepsy. *British Medical Journal*, 3(5821):288, 1972. (Letter)

Contrary to the suggestions of other investigators, our recent experience with 31 cases of encephalitis attributable to the herpes simplex virus has demonstrated that this virus can produce a fulminating encephalitis with severe sequelae in young children. In this study series, 10 were younger than 10 years, and 9 younger than 2 years. All presented as an acute illness, generally accompanied by seizures. Three eventually died, 5 were left severely brain damaged, and 1 was moderately disabled. So far, however, there are insufficient data to determine whether in milder cases an unrecognized herpes simplex infection may be the cause of temporal lobe epilepsy, as has been suggested. - *N. Mize.*

United Oxford Hospitals
Oxford, England

2821 SCHWARTZ, JEROME; & TERESITA, S. ELIZAN. Growth of herpes simplex virus in transformed glial and neuronal cells in tissue culture: ultrastructural studies. *Journal of Neuropathology and Experimental Neurology*, 32(2):303-312, 1973.

Ultrastructural differences in the pattern of replication of herpes simplex virus (HSV) in neuroblastoma and transformed glial cells growing in continuous tissue culture are described. The cells used in these studies were the IMR-32 human neuroblastoma cells (ATCC) and a continuous line of SV-40 transformed hamster glial cells, which produce S-100 protein. The studies suggest that cells of neuronal origin have a higher capacity to produce infectious HSV than do glial cells. Possible explanations why fewer virus particles are present in transformed glial cell cultures are: that fewer nucleocapsids become enveloped at the nuclear membrane in these cells than in neuronal cells, and that the structural integrity of the nuclear membrane is destroyed in infected transformed glial cells, releasing many unenveloped nucleocapsids directly into the cytoplasm. In the transformed neuronal cells, enveloped particles accumulate in the perinuclear space, the endoplasmic reticulum, and cytoplasmic vacuoles; this accumulation probably serves as protection against particle degradation directly in the cytoplasm. Such protective membrane-bound spaces are rarely present in these infected glial cells, a fact which may account for their reduced yield of virus. A differential response of cells of the nervous system to HSV infection is implied. (27 refs.) - *A. C. Schenker.*

Mount Sinai School of Medicine
New York, N.Y. 10029

2822 KIM, CHONG BIN; JOHNSON, WILLIAM W.; & MACMILLAN, DUNCAN R. Hyperglycemic nonketotic coma in a post-pancreatectomy diabetic infant. *American Journal of Diseases of Children*, 125(5):755-756, 1973.

A case of nonketotic hyperglycemic coma ultimately proved fatal in a 11-month-old boy who had developed mild diabetes following pancreatectomy at age 9 months for refractory infantile hypoglycemia. Both glucocorticoids and diphenylhydantoin were administered during the child's terminal illness, but neither can be causally implicated in the development of the hyperosmolar nonketotic diabetic coma. This condition has only rarely been associated in the literature with cases of juvenile onset diabetes. (19 refs.) - *N. Mize.*

University of Louisville
School of Medicine
Louisville, Kentucky

2823 SLUNGAARD, ROLV K. *H. influenzae* meningitis: Ampicillin or chloramphenicol treatment? *Pediatrics*, 50(2):347, 1972. (Letter)

A case of gram negative *H. influenzae* meningitis in a young child, after failing to respond to standard ampicillin treatment, was successfully treated with chloromycetin. Since ampicillin-resistant strains of *H. influenzae* are occasionally encountered in childhood meningitis, the chloramphenicol treatment alternative should not be dismissed. (1 ref.) - *N. Mize.*

1836 South Avenue
La Crosse, Wisconsin 54601

2824 **KLEIN, ROBERT.** The real cause of lead poisoning. *Pediatrics*, 50(2):347-348, 1972. (Letter)

Misplaced concern for the landlord's financial wellbeing is successfully preventing the rigorous enforcement of sanitary codes and deleading of housing units required to eradicate effectively the causes of childhood lead poisoning. Recently successful rehabilitation efforts in Boston have proven the fears of bankrupting small landlords to be groundless. Priorities should be readjusted so that, pending possible allocation of government funds for housing rehabilitation, regulations currently standing are more strictly enforced. (1 ref.) - *N. Mize.*

818 Harrison Ave.
Boston, Massachusetts

2825 **VALDES, ORESTES S.; MAURER, HAROLD M; & SHUMWAY, CLARE N.** Light plus phenobarbital in the reduction of serum bilirubin. *Pediatrics*, 50(1):165, 1972. (Letter)

Findings in a controlled study of 75 low birthweight infants from a predominantly Negro population are in line with other reports suggesting that phenobarbital has no additive effect in lowering serum bilirubin concentrations when used in combination with phototherapy and that genetic background is an insignificant factor in the infant's response to treatment. Study results show also that phenobarbital used alone is better than no therapy, but not as effective as light. (2 refs.) - *N. Mize.*

2826 **LOVELL, K. E.** The management of jaundice in the newborn. *Medical Journal of Australia*, 2(12):687, 1972. (Letter)

Considerable experience with both the continuous drip exchange transfusion and the standard exchange method for treating neonatal jaundice has proven the continuous method to be clearly superior, particularly in the neonatal unit. Both are equally simple, but the continuous method is nearly problem-free, requires no repeats, and uses no special apparatus. The only additional risk is associated with arterial catheterization, but that risk is acceptably small. - *N. Mize.*

16 Bagot Street
North Adelaide, S.A. 5006, Australia

2827 **LUCEY, JEROLD F.** The unsolved problem of kernicterus in the susceptible low birth weight infant. *Pediatrics*, 49(5):646-647, 1972.

The previous report that kernicterus occurred in 4 small sick premature infants with low serum concentrations of bilirubin despite the use of late phototherapy and exchange transfusion, followed by an increase in serum bilirubin levels to above 10mg/100ml in all of them, comes in the wake of other studies which have indicated repeatedly that kernicterus can occur with such levels in susceptible infants who are not receiving phototherapy. The premature infant who is particularly susceptible to death from kernicterus can be identified by a birthweight of less than 1,500g, hypothermia, asphyxia, acidosis, hypoalbuminemia, sepsis, meningitis, drugs, and a serum bilirubin level above 10mg/100 ml. Selection of high-risk infants shortly after birth and placement on phototherapy before the bilirubin has reached this level might be effective. (6 refs.) - *B. J. Grylack.*

University of Vermont Medical School
Burlington, Vermont 05401

2828 **LIN-FU, JANE S.** Acute and chronic childhood lead poisoning: Criticism of the statement. *Pediatrics*, 49(3):474-475, 1972.

The AAP statement "Acute and Chronic Childhood Lead Poisoning" represents a step backwards in the very slow progress that has been made against this hazard. The recommendation that the major emphasis be placed on the testing of residences for lead-pigment paints is inappropriate, since most cities today cannot correct housing hazards even for those children diagnosed as suffering from lead poisoning. Testing of high-risk children for undue lead absorption and poisoning should receive primary attention, with proper follow-up being an integral part of the program. The AAP recommends that lead blood determinations be made generally in all 12- to 15-month-old children in identified high-risk areas, whereas a peak prevalence at 2 years is generally accepted. Furthermore, the statement indicates that exposure should be investigated in children with blood lead of 50μg/100ml, in contrast to the 40μg/100ml level recommended by the U.S. Surgeon General. (5 refs.) - *B. J. Grylack.*

2829 **ZINNER, STEPHEN H.; MCCORMACK, WILLIAM M.; LEE, YHU-HSIUNG; ZUCKERSTATTER, MARGUERITE H.; & DALY, A. KATHLEEN.** Puerperal bacteremia and neonatal sepsis due to *Hemophilus parainfluenzae:*, Report of a case with antibody titers. *Pediatrics*, 49(4):612-614, 1972.

A case of maternal bacteremia in a 26-year-old woman and neonatal sepsis in her male infant due to *Hemophilus parainfluenzae* is reported. No immunoglobulin (Ig) M antibody to the infecting organism was present in the cord serum at birth, but the infant developed a titer of IgM and IgG of 1:160 by age 1 week. Low, yet detectable, titers of specific IgM and IgG were present in the mother at term. The IgG in the cord serum was presumed to reflect maternal antibody. The infant was probably infected during the difficult labor or delivery, the absence of IgM antibody against the infecting organism at birth suggesting the lack of preexisting infection *in utero*. This report provides further evidence that *H. parainfluenzae* is capable of causing serious infections and that its pathogenicity should not be underestimated. (22 refs.) - *B. J. Grylack.*

Boston City Hospital
Boston, Massachusetts 02118

2830 **WILFERT, CATHERINE M.; & KATZ, SAMUEL L.** *H. influenzae* meningitis: Is ampicillin proper treatment? *Pediatrics*, 40(4):635-636, 1972. (Letter)

At this time ampicillin is the initial treatment of choice in the therapy of childhood meningitis. It offers the safest and most effective initial therapy for meningitis due to pneumococci, meningococci, and *Hemophilus influenza* type b. Additionally, it avoids the recognized toxicities of chloramphenicol and appears equally effective in the treatment of H. influenzal infections. The impetus for the increased dosage recommended for ampicillin results in part from findings that higher doses increase serum levels and thus maintain the desired cerebrospinal fluid levels as inflammation decreases and in part from careful surveillance of ampicillin failures due to small doses. (15 refs.) - *B. J. Grylack.*

American Academy of Pediatrics
Durham, North Carolina

2831 **MARDER, GERARD.** *H. influenzae* meningitis: Is ampicillin proper treatment? *Pediatrics*, 49(4):634-635, 1972. (Letter)

The effective therapy for *H. influenzae* meningitis achieved with chloramphenicol should not be abandoned until new therapy is proven to be clearly and scientifically superior. Despite widespread enthusiasm for ampicillin therapy, various increased dosages have been recommended. Only a carefully conducted series alternating ampicillin and chloramphenicol therapy will produce valid conclusions on the relative merits of these drugs. *B. J. Grylack.*

New Hope Professional Building
Gastonia, North Carolina 28052

2832 **BAERENTSEN, HANNE.** Case report: neonatal hypoglycemia due to an islet-cell adenoma. *Acta Paediatrica Scandinavica*, 62(2):207-210, 1973.

A male newborn infant exhibited hypoglycemia which was refractory to treatment with hydrocortisone and diazoxide. The leukocyte amylo-1,6 glucosidase activity was decreased, but there was no hepatomegaly. A pea-sized tumor which contained 12μg of insulin/mg tissue (vs 12-60ng/mg usually found in insulinomas) was removed at age 4 mo. The postoperative serum glucose levels and subsequent development have been normal. (14 refs. - *V. J. Goldberg.*

Doravej 75
9000 Aalborg, Denmark

2833 **SKINHOJ, PETER; SARDEMANN, HENRIK; COHN, JORGEN; MIKKELSEN, MARGARETA; & OLESEN, HENRIK.** Hepatitis associated antigen (HAA) in pregnant women and their newborn infants. *American Journal of Diseases of Children*, 123(4):380-381, 1972.

Transmission studies of 52 pregnant hepatitis-associated antigen (HAA) carriers and their newborn infants indicate that HAA is only rarely, if ever, transmitted across the placental barrier. Harvested cord blood showed all infants to be negative for HAA and anti-HAA at birth. Of the 28 children followed through age 3-5 mos, none have developed hepatitis, and all sera have re-

mained negative. Breast milk samples from the HAA-positive mothers were likewise negative. Previous reports have traced the development of hepatitis at age 2-5 months in children born to mothers suffering from acute hepatitis at delivery. Most likely, fetomaternal bleeding is at fault in such cases. (17 refs.) - *N. Mize.*

Bispebjerg Hospital
Copenhagen, Denmark

2834 FLEMING, A. F. The incidence of heterozygous beta-thalassaemia. *Medical Journal of Australia*, 2(16):910, 1972. (Letter)

Personal clinic experience in western Australia supports the value of screening all pregnant women of Mediterranean origin for β-thalassemia, as well as the husbands of those women identified as having this condition. In Perth the actual incidence of β-thalassemia among Italians is around 4%, most of those affected having emigrated originally from the Straits of Messina area. (4 refs.) - *N. Mize.*

Ahmadu Bello University
Zaria, Nigeria

2835 MIYOSHI, KOHO; WOLF, ABNER; HARTER, DONALD H.; DUFFY, PHILIP E.; GAMBOA, EUGENIA T.; & HSU, KONRAD C. Murine influenza virus encephalomyelitis: I. Neuropathological and immunofluorescence findings. *Journal of Neuropathology and Experimental Neurology*, 32(1):51-71, 1973.

A histological study of the murine influenza virus encephalomyelitis, the mode of virus multiplication after intracerebral inoculation in the infant mouse brain, and the results of fluorescence antibody observations of the spread and localization of the virus in the brain is presented. The Swiss white mouse inoculated with the NWS strain of influenza A virus exhibits an early involvement of ependymal cells as evidenced by their necrosis and the presence of virus antigen. Astrocytosis was an early reaction to the infection in the hippocampi, growing progressively more intense up to and through the third and fourth days of infection. Inclusion bodies in the nuclei and rarely in the cytoplasm of nerve cells were confirmatory evidence of virus infection of these cells. The involvement of the central canal of the spinal cord was very like that in the cerebral ventricles. Intranuclear inclusions were seen in one spinal cord specimen, and many spinal cord levels were affected in numerous mice. (24 refs.) - *A. C. Schenker.*

College of Physicians and Surgeons
Columbia University
New York, New York 10032

2836 DUFFY, PHILIP E.; WOLF, ABNER; HARTER, DONALD H.; GAMBOA, EUGENIA T.; & HSU, KONRAD C. Murine influenza virus encephalomyelitis: II. Electron microscopic observations. *Journal of Neuropathology and Experimental Neurology*, 32(1):72-91, 1973.

The electron microscopic observations of the maturation of virions in the tissues of mice with experimental influenzal encephalomyelitis are described. Virions appeared in large number, forming along the "free" ependymal surfaces 2-4 days after inoculation. The visualization of virus primarily at the free surface of these cells or where large intercellular spaces exist suggests that when searching for this virus *in vivo* it is best to examine "free" surfaces at some stages of the infection. Virions within intracellular vacuoles were not rare and were usually in cells not having a free ependymal surface. A few viruslike structures appeared to form from endoplasmic reticulum. The elongated virus, budding from the tips of villi, was a marked feature of the study. The "tubules" seen in longitudinal and cross sections of the virions correspond to the internal "strands" previously described; this appears to represent nucleocapsid. There is no information on the composition of the intracytoplasmic changes seen within infected cells; it is suggested that they are not virus particles but are either a degenerative change of the cells or some change induced by the virus, since they are not seen in the tissues of uninfected animals. (28 refs.) - *A. C. Schenker.*

College of Physicians and Surgeons
Columbia University
New York, New York 10032

2837 NORMAN, ARNE; & *STRANDVIK, BIRGITTA. Excretion of bile acids in erythroblastosis fetalis. *Acta Paediatrica Scandinavica*, 62(2):161-166, 1973.

The urinary and fecal excretion of isotope following the intramuscular injection of cholic acid-24^{14}C was studied in 10 newborn infants (0-5 days old) with erythroblastosis (EB) due to Rh-isoimmunization. Seven EB infants had cholestasis. Except for one noncholestatic infant, all excreted the isotope into the urine (69 to 99% of the administered isotope). Unconjugated labeled cholic acid was collected in the first 24 hrs. The urine collected on days 2-4 after the injection of isotope contained conjugated bile acids. The 7 cholestatic EB excreted 4.5 to 128μm of urinary cholic acid per day, while noncholestatic EB excreted 0.4 to 0.9μm/day of urinary cholic acid. These findings suggest that the synthesis of bile acids in the liver is greater in EB associated with cholestasis. The patterns of urinary excretion of bile acids among 3 of 5 infants with physiological jaundice and 2 with hyperbilirubinemia were similar to those observed in the 3 noncholestatic EB infants. (7 refs.) - *V. J. Goldberg.*

St. Gorans syukhus
Box 12500, S-112 81 Stockholm
Sweden

2838 NORMAN, ARNE; & *STRANDVIK, BIRGITTA. Excretion of bile acids in extra-hepatic biliary atresia and intrahepatic cholestasis of infancy. *Acta Paediatrica Scandinavica*, 62(3):253-263, 1973.

Measurements of urinary and fecal excretion of bile acids were done in 24 acutely jaundiced infants to see whether differences among these parameters could be used for the differential diagnosis of biliary atresia (BA) and intrahepatic cholestasis (IHC). Five of 24 had BA confirmed by laparotomy, and 19 had IHC. BA and IHC infants had high urinary cholic acid and chenodeoxycholic acids (6μm/day or more) vs less than 1μm/day in normal infants. The urinary excretion of these compounds did not differ between the 2 groups of patients, but there were wide variations among individuals. Following the intramuscular injection of cholic acid-24^{14}C, most of the recovered isotope appeared in the urine, with less than 3% of the isotope appearing in the feces among 5 with BA and 11 of 19 with IHC. Eight of 19 IHC excreted more than 3% of the isotope into the feces, a finding which can be used to exclude a diagnosis of BA. Thin-layer chromatographic analysis of the urine revealed that labeled cholic acid was excreted in the first 24 hours and conjugated labeled bile acids were found on days 2 to 4. The patterns of conjugated bile acid excretion were similar for BA and IHC. When six infants (4 with BA) who had progressive cirrhosis were reexamined, the urinary cholic and chenodeoxycholic acids remained elevated, the fecal excretion of injected labeled cholic acid was below 1% for the BA patients and below 5% for the IHC patients, and the rate of excretion of isotope was unchanged. Cholestasis in infants appears to be associated with suppression of bile acid into the intestine. (31 refs.) - *V. J. Goldberg.*

*St. Gorans sjukhus
Box 12500, S-112 81 Stockholm, Sweden.

2839 NORMAN, ARNE; & *STRANDVIK, BIRGITTA. Bile acid excretion after disappearance of jaundice in intrahepatic cholestasis of infancy. *Acta Paediatrica Scandinavica*, 62(3):264-268, 1973.

Twelve infants who had intrahepatic cholestasis were reexamined 1 to 58 weeks after the clearing of jaundice. Following the intramuscular injection of cholic acid-24^{14}C, seven of 12 infants excreted less than 5% of the isotope into the urine, and five of 12 excreted between 10 and 26% of the isotope into the urine. Virtually all of the urinary bile acids were conjugated. The excretion of cholic and chenodeoxycholic acids in the urine ranged from 0.6 to 3.7μmol/day vs the undetectable amounts of these compounds in the urine of seven healthy 2- to 8-month-old infants. Five of 12 had increased serum transaminase, 4 of 7 had decreased BSP elimination, and 6 of 6 had normal galactose balance. These findings indicate that bile acid excretion had not fully returned to normal in these infants. (10 refs.) - *V. J. Goldberg.*

2840 PHILPOT, C. R.; & *LO, D. Cryptococcal meningitis in pregnancy. *Medical Journal of Australia*, 2(18):1005-1007, 1972.

Two Australian aborigine women had cryptococcal meninigitis during pregnancy. Patient 1, who had a history of pulmonary infection, was treated with amphotericin B. Her pregnancy was terminated by spontaneous abortion; shortly afterwards she

succumbed to cardiorespiratory arrest. Autopsy revealed cryptococci in the lung and brain. Patient 2 was initially treated with amphotericin B and later with 5-fluorocytosine because of adverse side effects of the first drug. Fluorocytosine was continued despite the discovery that the patient was pregnant, since she had been in the second trimester of pregnancy when it was initiated. Labor was induced at 34 weeks because of toxemia; aside from its prematurity, the child appeared normal and has had an uneventful development since. This case may be the first instance of the treatment of a pregnant woman with cryptococcus meningitis with 5-fluorocytosine. It is believed to be the first case reported on the absence of teratogenic effects from use of the drug in pregnancy. (7 refs.) - *V. J. Goldberg.*

P.O. Box 168
Darwin, Northern Territory 5794
Australia

2841 Immunization against measles. *Medical Journal of Australia*, 2(8):401-402, 1972. (Editorial)

Measles is characterized by a high morbidity rate in urban areas (50% of children acquire the disease by age 3), a high risk of secondary infections, and the occurrence of encephalitis in 1 of 2,000 cases. A measles immunization campaign reduces the incidence of the disease, but unless each cohort of children is immunized, the disease reappears. Maternal passive immunity nullifies the vaccine for the first 7 months of life and diminishes the vaccine's effect for another 2 months, so the vaccine should not be given until age 1 year. Since the incidence of measles is greatest in the second and third years, immunization should not be delayed. The low incidence (14%) of mild side effects, the few contraindications and the low cost (free to Australian physicians) of the vaccine are arguments for early and universal immunization, especially when the high morbidity, expense of treatment, and risk of complication which is incurred with measles are considered. (3 refs.) - *V. J. Goldberg.*

2842 **DOHERTY, R. L.; CARLEY, J. G.; CREMER, M. R.; RENDLE-SHORT, J. T.; HOPKINS, I. J.; HERBERT, D. H.; CARO, A. J.; & STEPHENS, W. B.** Murray Valley encephalitis in Eastern Australia, 1971. *Medical Journal of Australia*, 2(21):1170-1173, 1972.

Epidemics of encephalitis due to the Murray Valley encephalitis virus have been associated with the epidemics of this disease in SE Australia in 1917, 1918, 1922, 1951, and 1957. Two young children with encephalitis displayed serological evidence of infection with Group B arbovirus of the Murray Valley virus encephalitis subgroup. These Ss were indication of further dissemination of the virus in SE Australia in 1971. The hemagglutination-inhibition tests for arbovirus antibody were elevated in the sera from 52 of 128 domestic fowls bred in 1 S's home region. (The series included 113 birds known to be nonreactive 1 year before.) Similar findings were found in the sera of fowls bred in the Murray Valley of Victoria. The encephalitis epidemics are associated with high rainfall in the preceding spring, but this association did not pertain to this limited dissemination of the virus. Further studies of the meteorological and epidemiological data are needed before correlations with predictive value can be made. The mosquitoes which may be the vectors of Murray Valley encephalitis virus breed in shallow pools over a wide area, so short-term control might be effected by aerial spraying of adult insects rather than the use of larvicides. (28 refs.) - *V. J. Goldberg.*

Queensland Institute for Medical
Research
Herston Road
Brisbane, Q. 4006

2843 **FIELD, P. R.; & *MURPHY, A. M.** The role of specific IgM globulin estimations in the diagnosis of acquired rubella. *Medical Journal of Australia*, 2(22):1244-1248, 1972.

Sucrose density gradient centrifugation was used to separate serum IgM and IgG, and the hemagglutination-inhibition test for rubella virus antibody was performed on the resulting fractions. IgM antibodies are detectable for about 60 days after an infection, while elevated IgG levels may persist for years. This method makes it possible to determine whether the high rubella antibody titers observed reflect a recent infection. It was possible to diagnose rubella by a rise in antibody titer alone in 6 of 38 patients (24 in the first trimester of pregnancy) with rubella-like illness. Rubella infection in the other 32 was demonstrated by specific IgM. Nine patients with rubella-like symptoms and positive serological tests did not

have specific IgM antibodies, and further tests revealed infections with other viruses. Among 12 patients with positive serological tests and no recent rubella-like illness, none had specific IgM antibodies. Since IgM antibodies do not cross the placenta, the presence of specific antibodies in the neonatal plasma is evidence of intrauterine infection. This technique provides an accurate assay of IgM antibodies and is useful in estimating the date of rubella infection. (25 refs.) - *V. J. Goldberg.*

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and Medical Research
PO Box 108
Lidcombe, NSW, Australia 2141

2844 WARBURTON, M. F.; JACOBS, D. S.; LANGSFORD, W. A.; & WHITE, G. E. Herd immunity following subunit influenza vaccine. *Medical Journal of Australia*, 2(2):67-70, 1972.

A program to vaccinate the population at risk of Hong Kong influenza with a deoxycholate-split influenza virus vaccine was carried out in the Northern Territory of Australia in 1969. The epidemic began before the campaign was finished. In the southern region of the Territory, a mean of 29% of the individuals in all 25 communities were immunized; the mean attack rates among the immunized and nonimmunized individuals were 5.3 and 16.6%, respectively. Of 26 communities in the northern region of the Territory, 1 had 84% immunization; 4 others had a mean level of immunization of 23% of the individuals, and there was no influenza in these 5 communities. Influenza outbreaks occurred in 17 of 20 nonimmunized northern region communities, the mean attack rate being 65%. The clinical course of the influenza was more severe in the nonimmunized communities, as 12 elderly people died of the disease. These findings demonstrated that immunization of the part of the population that is at risk of influenza provides protection for the entire community. (11 refs.) - *V. J. Goldberg.*

Commonwealth Serum Laboratories
Parkville, Victoria 3052
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2845 GRAUAUG, ALFRED. Brush up your medicine: The management of jaundice in the newborn. *Medical Journal of Australia*, 2(7):374-377, 1972.

The date of appearance of neonatal jaundice can be used in the differential diagnosis of the disease. Jaundice appearing in the first 24 hours is usually due to blood group incompatibility. The combination of icterus and edema indicates hydrops fetalis, and the coexistence of icterus and petechiae indicates antenatal infection. Physiological jaundice may be the cause of icterus appearing on day 2 in an otherwise healthy infant. Jaundice occurring on day 4 or later may be due to infection, or glucose-6-phosphate dehydrogenase deficiency. Late-appearing jaundice with unconjugated bilirubin may be due to breast-milk jaundice, hypothyroidism, or galactosemia. Icterus with conjugated bilirubin may be due to obstruction or giant-cell hepatitis. Since isoimmunization is the most common cause of neonatal jaundice, the cord blood of neonates at risk should be examined for Coombs test, hemoglobin level, and serum bilirubin. Monitoring of the rate of rise of serum bilirubin helps in timing the exchange transfusion. If blood group incompatibility is not the cause of icterus, appropriate tests should be made to investigate other etiologies. The chief complication of untreated neonatal icterus is kernicterus, which has a 75% mortality rate and leaves the survivors with severe cerebral dysfunction. Premature infants with jaundice are susceptible to hearing loss, minor cerebral dysfunction, and dental defects. The usual treatment is exchange transfusion of 2 or more volumes of heparinized blood (citrated blood may cause ion disturbances). Simple transfusion, phototherapy, phenobarbitone administration, agar, and fluid feeding are also done. (6 refs.) - *V. J. Goldberg.*

King Edward Memorial Hospital
for Women
Subiaco, W.A. 6008
Australia

2846 TER MEULEN, V.; KACKELL, Y.; MULLER, D.; KATZ, M.; & MEYERMAN, R. Isolation of infectious measles virus in measles encephalitis. *Lancet*, 2(7788):1172-1175, 1972.

A 40-yr-old man who developed encephalitis 3 days after the onset of acute measles represents an instance where virus could be cultivated from brain tissue. The neuropathological findings included the presence of demyelinated plaques in the white and grey matter and Cowdry type-A inclusion bodies in the nuclei of ganglion cells in the vicinity of the plaques. Cells located in areas of

plaque formation showed measles antigen with the immunofluorescence test. Measles virus was isolated for a co-culture of brain cells with CV-1 cells. These findings suggest that the virus caused the encephalitis either by initiating the inflammation or by setting up conditions in which an allergic-type disease could develop. (15 refs.) - *V. J. Goldberg.*

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Universitat Wurzburg
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2847 VAN DEN BERGHE, G.; HUE, L.; CORBELL, L.; & HERS, H. G. Studies on hypoglycemia in hereditary fructose intolerance. *Pediatric Research*, 7(1):59, 1973. (Abstract)

The mechanism of the hypoglycemia induced in patients with hereditary fructose intolerance (HFI) in response to fructose was investigated in studies on normal children and those with HFI. The injection of glucagon (100γ/kg) provoked a 10-30-fold increase of urinary cyclic adenosine-monophosphate (cAMP); after 250mg/kg i.v. of fructose, this increase was almost completely abolished in HFI patients, but remained normal in the controls. Data from the literature provide evidence that the reduced production of cAMP in HFI is secondary to the marked decrease of adenosine-triphosphate (ATP) in the liver; the increase of cAMP brought about by glucagon, however, was still sufficient to activate liver phosphorylase. A disturbance at the level of the action of cAMP in the liver in HFI was indicated by the fact that the injection of dBcAMP in two patients did not raise blood glucose after a fructose load, although it did in normal children. *A. C. Schenker.*

University of Louvain
Louvain, Belgium

2848 SIZONENKO, P. C.; PAUNIER, L.; VALLOTTON, M. B.; & MARLISS, E. B. Ketotic hypoglycemia: epinephrine insufficiency and decrease in alanine availability. *Pediatric Research*, 7(1):59, 1973. (Abstract)

Ketotic hypoglycemia was investigated in 5 children with this condition (H) and in 5 (C) who were investigated for an unproven abnormality of carbohydrate metabolism. Both groups were submitted to an infusion of 2-deoxy-D-glucose; the C group responded with clinical signs of hyperadrenergism (a rise in blood glucose and increase in plasma renin activity), whereas the H group showed no such changes. I.v. glucagon tests were performed before and after a 24-hour fasting period; ketosis appeared 16-21 hours after fast in both groups. Blood alanine levels in the H group were lower after the fast and decreased more after the second glucagon injection. It was concluded that ketotic hypoglycemia is due to an abnormal adrenal medulla response to an induced glucopenia; that fasting does not differentiate between the C and H groups; and that the deficiency of alanine as a substrate for gluconeogenesis is probably related to deficient epinephrine secretion. - *A. C. Schenker.*

Clinique Universitaire de Pediatrie
Laboratoire d'Investigation
Clinique
Geneva, Switzerland

2849 ORZALESI, M.; LUCAREILLI, P.; SCARABINO, R.; GLORIA, F.; PALMARINO, R.; & BOTTINI, E. Importance of some genetic factors in neonatal jaundice of white and Negro infants. *Pediatric Research*, 7(1):54, 1973. (Abstract)

The role played by placental alkaline phosphatase (Pl) and other factors in neonatal jaundice was studied in 2 groups: 362 white infants and 98 Negro infants incompatible with their mothers in the ABO system. The overall incidence of jaundice was significantly higher in Negro infants (34% vs. 24%; $P<0.05$). Separate analysis of infants with A and B group revealed that this difference was present and highly significant ($P<0.01$) only in Ss with B group; in all the infants of this group, there was a negative association between jaundice and Pl^{f1} factor. In Negro infants jaundice was also positively associated with phosphoglucomutase locus 1 factor. The higher incidence of neonatal jaundice in Negro infants could thus be partially related to differences in the genetic background. -- *A. C. Schenker.*

University of Rome (Genetics)
Rome, Italy

2850 **FEKETE, M.; MILNER, R.D.G.; HODGE, J. S.; & ASSAN, R.** The influence of donor blood temperature on hormonal and metabolic changes during exchange transfusion. *Pediatric Research*, 7(1):53, 1973. (Abstract)

The effect of donor blood temperature on the hormonal and metabolic responses of the infant during exchange blood transfusion was studied. Determinations of plasma glucose, free fatty acids, glycerol, insulin, growth hormone, and glucagon were obtained during exchange transfusions performed with heated blood (36.5-38.5°) in 10 Ss or cooled blood (10-13°) in 9 Ss. Term and normally grown infants suffering from rhesus incompatibility comprised the Ss. Cold transfusions caused a progressive fall in rectal, umbilical vein, and skin temperatures, whereas warm transfusions caused no change in body temperature. Infants receiving cold transfusions differed from the others in a greater net positive balance of glucose and a smaller net negative balance of free fatty acids. The thermal stress caused to the infant by cold blood transfusion was probably mitigated by the glucose in the donor blood. - *A. C. Schenker.*

Department of Child Health and
Chemical Pathology
University of Manchester
Manchester, England

2851 **LUND, H. T.; & JACOBSEN, J.** Influence of phototherapy on unconjugated bilirubin in bile of newborn infants with hyperbilirubinemia. *Pediatric Research*, 7(1):53, 1973. (Abstract)

The effect of phototherapy on unconjugated bilirubin was studied in 12 newborn infants with hyperbilirubinemia without signs of isoimmunization. Of these, 7 infants received phototherapy for 24 hours, and 5 served as controls. During the phototherapy the color of the bile changed to brownish-black and the concentration of bilirubin doubled; no change in color or concentration occurred in the unconjugated bilirubin of the controls. A significant difference ($P = 0.05$) was found due to phototherapy. - *A. C. Schenker.*

University of Manchester
Manchester, England

2852 **TER MEULEN, V.; KACKELL, Y.; MULLER, D.; KATZ, M.; & MEYERMANN, R.** Isolation of measles virus from measles encephalitis. *Pediatric Research*, 7(1):53, 1973. (Abstract)

Immunofluorescent studies of brain sections with hyperimmune serum against measles from the brain of a 40-year-old male patient with typical symptoms of measles encephalitis revealed the presence of measles antigen in ganglion and glia cells. Infectious virus could not be isolated from brain homogenates, but brain tissue, trypsinized and cocultivated with susceptible cell lines for measles virus, resulted in a cytopathic effect and in the recovery of infectious measles virus. The isolation of measles virus in this case demonstrates that an active measles virus replication plays a role in the etiology of measles encephalitis. - *A. C. Schenker.*

University of Wurzburg (Virology)
Wurzburg, West Germany

2853 **WEIBLE, ROBERT E.; VILLAREJOS, VICTOR M.; HERNANDEZ, GUILLERMO C.; STOKES, JOSEPH, JR.; BUYNAK, EUGENE B.; & *HILLEMAN, MAURICE R.** Combined live measles-mumps virus vaccine. *Archives of Disease in Childhood*, 48(7):532-536, 1973.

In three clinical studies, a combined live measles-mumps virus vaccine (M-M vax) was administered to a total of 334 children (age 10 months to 6 years) in Philadelphia and Nicaragua, none of whom initially had antibody response to either virus. Subsequent measurements revealed no evident suppression in the seroconversion rate or in the height of antibody response, as compared with results when the vaccines were administered separately. Overall, 99% of the children responded serologically to the measles virus and 96% to the mumps. Since no remarkable clinical reactions were noted, the combined vaccine would seem to be a simple and effective means for immunization. (8 refs.) - *N. Mize.*

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Research
West Point, Pennsylvania 19486

2854 ABRAMS, B. A.; GUTTERIDGE, J.M.C.; STOCKS, J.; FRIEDMAN, M.; & *DORMANDY, T. L. Vitamin E in neonatal hyperbilirubinemia. *Archives of Disease In Childhood*, 48(9):721-724, 1973.

Relatively large vitamin E supplements administered orally during the first week of life to 60 infants with physiologic jaundice succeeded in raising serum vitamin E levels, thereby reducing the susceptibility of red cells to autoxidation, but had no significant effect on either the hemoglobin or the serum bilirubin levels. Overall, therefore, the relationship of autoxidation of the red cell lipids to the development of hemolysis in newborns remains unclear. (25 refs.) - *N. Mize.*

*Whittington Hospital
London N.19, England

2855 BLUESTONE, R.; GOLDBERG, L. S.; TUCKER, S. M.; & STERN, H. Serological studies in asymptomatic congenital cytomegalovirus infection. *Archives of Disease In Childhood*, 48(9):738-740, 1973.

Immunological abnormalities were found to be sparse and slight in serological studies of 13 mothers and 11 infants identified as asymptomatic excretors of cytomegalovirus (CMV). These results are in distinct contrast to the abnormalities typical of postperfusion CMV disease and spontaneous CMV mononucleosis. The reason for these observed differences remains unclear. (11 refs.) - *N. Mize.*

*VA Wadsworth Hospital
Los Angeles, California 90073

2856 HEGGARTY, H.; TRINDADE, P.; & BRYAN, E. M. Hyperglycaemia in hyperosmolar dehydration. *Archives of Disease in Childhood*, 48(9):740-741, 1973.

The recent finding of hyperglycemia in 6 nondiabetic children (age 11 days to 22 months) with hyperosmolar dehydration underscores the dangers associated with administering insulin therapy in such patients. (Insulin may produce serious hypoglycemia or cerebral edema with convulsions.) Since the association between these 2 conditions has, in the past, been thought only coincidental, the dangers of incorrect therapy have not previously been recognized. (7 refs.) - *N. Mize.*

Darlington Memorial Hospital
Darlington, Co. Durham, England

2857 GWYNN, C. M.; & GEORGE, R. H. Neonatal citrobacter meningitis. *Archives of Disease In Childhood*, 48(6):455-458, 1973.

A hospital epidemic of gram-negative neonatal meningitis attributable to *Citrobacter koseri* involved 4 infants, one of whom died of fulminating infection following unsuccessful antibiotic treatment. The virulence of this type of infection, from which only one of the infants recovered without severe permanent brain damage, makes clear the need for extreme precautions in the neonatal unit when the organism is identified. (9 refs.) - *N. Mize.*

The Children's Hospital
Birmingham B16 8ET, England

2858 LIDIN-JANSON, GUNILLA; & STRANNEGARD, ORJAN. Guillain-Barre syndrome after measles. *British Medical Journal*, 4(5839):553, 1972. (Letter)

The diagnoses of measles and polyradiculoneuritis were well established in 2 cases of Guillain-Barre syndrome and encephalitis after measles, both patients being admitted to the hospital 6 and 7 days, respectively, after the onset of the rash. The patients had encephalomyelitis with a polyneuritis, which conformed to the criteria of the Guillain-Barre syndrome. - *B. J. Grylack.*

Institute of Medical Microbiology
University of Goteborg, Sweden

2859 HAYMOND, MOREY W.; KARL, IRENE E.; FEIGIN, RALPH D.; DE VIVO, DARRYL; & *PAGLIARA, ANTHONY S. Hypoglycemia and maple syrup urine disease: defective gluconeogenesis. *Pediatric Research*, 7(5):500-508, 1973.

A deficit in gluconeogenesis from amino acids was suggested in a patient with classical maple syrup urine disease associated with severe fasting hypoglycemia on the basis of a preferential shunting of

3-carbon substrates into glutamine, which prevented reimbursement of the tricarboxylic acid cycle of substrates. The patient manifested a precipitous and sustained rise in glutamine and abnormally elevated glutamate levels, which may have reflected inhibition of normal glutamine and glutamate metabolism. Concentrations of gluconeogenic amino acids in plasma returned to the normal range when the patient's branched chain amino acids were corrected by specific dietary treatment. Despite this therapy and supportive medical management, however, the clinical condition of the patient deteriorated. (29 refs.) - *B. J. Grylack.*

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2860 **ROBBINS, JOHN B.; PARKE, J. C., JR.; SCHNEERSON, RACHEL; & WHISNANT, JOHN K.** Quantitative measurement of "natural" and immunization-induced *Haemophilus influenzae type b* capsular polysaccharide antibodies. *Pediatric Research*, 7(3):103-110, 1973.

Haemophilus influenzae type b antibodies were measured quantitatively in the sera of 422 normal adult blood donors, 100 pregnant women at term, and 20 adult volunteers before and after immunization with *H. influenzae* type b polysaccharide. A minimal protective level of serum anti-type b antibody was estimated to be 0.06-0.1 μg antibody/ml. A longer interval to reach the maximum antibody concentration after injection of the polysaccharide in infant Ss than in adults and lower levels of postimmunization anti-type b antibodies in the infants and children than in the adults were observed. In addition, in contrast to the relatively constant level of anti-type b antibodies seen 3 to 4 years following immunization of the adults, most of the infants and children showed a decline from the maximum level of serum antibodies within several months. A postulated direct stimulation of previously differentiated antibody-producing cells by the purified polysaccharide may serve to explain the adult-type immune response of the 3 infants with fecal *Escherichia coli* containing the cross-reactive polysaccharide, as contrasted with the immunized infants, as well as the direct relation between the level of preimmune and postimmunization anti-type b antibodies in the adult volunteers. (35 refs.) - *B. J. Grylack.*

2861 **HOLOWACH-THURSTON, JEAN; HAUHART, RICHARD E.; JONES, ELIZABETH M.; IKOSSI, MARIA G.; & PIERCE, R. WENDELL.** Decrease in brain glucose in anoxia in spite of elevated plasma glucose levels. *Pediatric Research*, 7(8):691-695, 1973.

In a study of glucose levels in the plasma of experimental animals, brain glucose in 34 mice less than 12 hours of age fell 72% during 6 minutes of induced anoxia, despite a doubling of the concentration of glucose in plasma. The anoxic brain in the intact animal was shown not to be a closed system, with brain lactate accumulating to higher levels than could be explained by the disappearance of cerebral glucose and glycogen. The impression that the rise in brain lactate concentration during anoxia is more likely a consequence of glucose transport and glycolysis than of transport or diffusion of lactate from plasma to the brain provides indirect support for a maintained circulation and transport of glucose from the blood to the brain for anaerobic glycolysis. Even under the condition of serious reduction of brain glucose in spite of normal or elevated plasma glucose levels, glucose administration appeared to have great clinical benefit. (10 refs.) - *B. J. Grylack.*

St. Louis Children's Hospital
St. Louis, Missouri 63110

2862 **KRAUSS, ALFRED N.; TORI, CARLOS A.; BROWN, JEFFREY; SOODALTER, JANE; & AULD, PETER A. M.** Oxygen chemoreceptors in low birth weight infants. *Pediatric Research*, 7(6):569-574, 1973.

Chemoreceptor activity was demonstrated by the Dejours method (1963) in 29 preterm, premature infants with weight appropriate for their gestational ages of 28 to 38 weeks and in 10 term infants. All infants, regardless of birthweight, gestational age, and postnatal age, showed a fall in minute volume (V_E) upon exposure to 50% or 100% oxygen and an increase in V_E upon exposure to 10% oxygen. The only differences dependent upon birthweight and postnatal age were that (1) infants of 34 to 38 weeks' gestation manifested a greater fall in 100% oxygen at 2 weeks of age than at birth ($p<0.05$); and (2) infants under 34 weeks' gestation displayed a

greater fall in V_E in 100% oxygen at birth than those of 34 to 38 weeks' gestation ($p<0.05$). The results do not support the contention that premature infants become more sensitive to either hypoxia or hyperoxia with increasing maturity or increasing postnatal age. The frequent observation of apnea in 100% oxygen and the ability of room air to decrease ventilation following an hypoxic stimulus indicate the danger of turning off respirations of a low birthweight infant with an excessively high oxygen concentration. (15 refs.) - *B. J. Grylack.*

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2863 **ST. GEME, JOSEPH W., JR.; DAVIS, CATHERINE W. C.; PERALTA, HUGO J.; FARIAS, N. ELVIRA; YAMAUCHI, TERRY; & COOPER, MAX D.** The biologic perturbations of persistent embryonic mumps virus infection. *Pediatric Research*, 7(6):541-552, 1973.

An experimental model of embryonic mumps virus infection developed in the chicken which permitted direct study of the interaction between developing tissues and virus in the aplacental host has suggested that placental dysfunction be considered as a cause of diminished embryonic growth and immunoglobulin production. The infection persisted throughout the full incubation of the chicken embryo, but virus disappeared from the viscera soon after hatch. Mumps virus was distributed widely in the organs of the hatching chicken, 50% or more of the total assayed in each chicken being recovered consistently from heart tissue. Specific mumps virus-neutralizing antibody was present 1 month after hatch but could not be detected in serum obtained at hatch or shortly afterwards. The retardation of embryonic and posthatch growth in infected chickens was significant; the heart and brain which contained the highest titers of virus and sustained the greatest pathologic insult showed the most marked decrease in organ weight at hatch. The impact of this experimental embryonic infection on somatic growth and brain weight resembles that of persistent viral infections of the human fetus. There was a delay in the maturation of immunoglobulin M and G synthesis, even though the infected chickens were capable of producing specific mumps virus-neutralizing antibody by 1 month of age. (34 refs.) - *B. J. Grylack.*

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2864 **COOPER, AUSTIN; MARTIN, RONALD; & *TIBBLES, JOHN A.R.** Pasteurella meningitis. *Neurology*, 23(10):1097-1100, 1973.

Two cases of meningitis caused by *Pasteurella pneumotropica* were reported, representing the first time the organism has been responsible for meningitis in man. The infections occurred 1 month apart in an 11-month-old boy and a 19-year-old man who lived in different areas, apparently had never been in contact with each other, and were admitted to different hospitals. The first patient was not bitten by an animal, but the family owned kittens which may have been ill at the same time the patient was affected. There was no evidence of immunologic deficiency in either patient. (18 refs.) - *B. J. Grylack.*

*I. W. Killam Hospital for Children
Halifax, Nova Scotia

2865 Rubella reinfection and the fetus. *Lancet*, 1(7810):978, 1973. (Editorial)

Subclinical reinfection with rubella is discussed in terms of a possible hazard to the fetus. Although clinical reinfection has been reported and substantiated serologically and by virus isolation, most cases of reinfection seem to be subclinical, and show only as boosts in antibody titer. Antibody titers after vaccination are 4-8 times lower than those after natural infection, so that reinfection is much more frequent after vaccination; such reinfections are, however, mostly subclinical. In pregnancy, reinfection is likely to harm the fetus only if the mother has a viremia. It has been assumed that during reinfection, the virus either remained localized at the site of entry or was successfully dealt with by circulating antibodies. Boue reported the birth of 3 clinically normal infants to mothers who had serologically proven rubella reinfection early in pregnancy; rubella-specific IgM antibody was not demonstrated.

Other cases have been reported with rubella-specific IgM antibody after reinfection which were associated with infection of the placenta and fetus. It is Boue's opinion that the fetus is not at risk, provided that serum fractionation studies show only rubella IgG antibody. (15 refs.) - *A. C. Schenker.*

2866 GEORGE, R. H. Gentamicin assay in jaundice. *Lancet*, 1(7807):838-839, 1973. (Letter)

Because of unreliable results reported by the plate-diffusion method and tube dilution technique, serum gentamicin levels were assayed in jaundiced patients by both techniques. The Ss were 7 patients with obstructive jaundice (conjugated bilirubin levels ranging from 11.5-38mg/100ml) and 1 patient with hemolytic disease of the newborn (unconjugated bilirubin, 21mg/100ml). In none of these patients was there a significant difference in the values obtained. Neither was there an artificially low result in recovery experiments by the plate assay, either by addition of gentamicin or sodium taurocholate. It is possible that examination of the case records might reveal some common factor responsible for the discrepancies in the results. (2 refs.) - *A. C. Schenker.*

Medical School
Birmingham B15 2TJ, England

2867 PEAD, P. J. Rubella reinfections. *Lancet*, 2(7821):149, 1973. (Letter)

In a series of experiments involving the detection of rubella-specific IgM by single fraction collection on Sephadex G-200, rubella-specific IgM could not be demonstrated in some sera taken during the first week of illness, despite the presence of hemagglutination-inhibition (H.I.) antibody. This was the case in 3 such sera with H.I. titers less than 1/40, whereas 9 specimens taken from other patients within the same period with H.I. titers greater than 1/40 have all shown IgM antibody by this method. Rubella infection had been diagnosed in both groups by the demonstration of H.I. titer rises in second samples. The method used thus has its limitations whereby the detection of rubella-specific IgM in low-titer sera taken during the week following the rash is not possible. (1 ref.) - *A. C. Schenker.*

Public Health Laboratory
St. Mary's General Hospital
Portsmouth PO3 6AQ, England

2868 SINHA, S. K.; KAVEGGIA, E.; & GORDON, M.C. The incidence of cytomegalovirus among mentally retarded and microcephalic children in a state institution. *Journal of Mental Deficiency Research*, 16(2):90-96, 1972.

The incidence of cytomegalovirus (CMV) infection in MR inst children is reported with respect to: complement-fixation (C-F) antibody titre; seroconversion rate in patients resident for 2-5 years; antibody response in patients under 5 years of age and of their respective mothers; and the association of CMV with microcephalic children. The serological findings indicated that 6 out of 89 Ss (6.7%) of children under 7 years of age had CMV C-F antibodies. They also indicated that all serum specimens from the microcephalic patients and their respective mothers had significant CMV C-F titres, suggesting the importance of intrauterine infection. The seroconversion rate was only 8.4% among the children who were resident in the inst for from 2-5 years; it cannot be concluded, therefore, that the spread of infection was localized in an inst setting. (17 refs.) - *A. C. Schenker.*

Central Wisconsin Colony and
Training School
Madison, Wisconsin 53704

2869 POTTER, JUDITH E.; BANATVALA, J. E.; & BEST, JENNIFER. Interferon studies with Japanese and U.S. rubella virus strains. *British Medical Journal*, 1(5847):197-199, 1973.

The interferon-inducing capacity of 3 Japanese strains of rubella virus was compared with that of 2 U.S. strains in human placental cultures, fetal lung cultures, and fetal leukocyte preparations. The studies revealed that the Japanese strains induced significantly higher levels of interferon in the placental cultures, but not in fetal lung

cultures or leukocyte preparations. Were these *in vitro* findings to occur *in vivo*, they might explain why Japanese strains do not cause fetal damage. If virus strains could be found which might render them more suitable for vaccines which are immunogenic and not teratogenic, these would constitute an ideal vaccine against rubella. (13 refs.) - *A. C. Schenker.*

St. Thomas's Hospital and
Medical School
London SE1 7EH, England

2870 New virus infections. *British Medical Journal*, 1(5847):190-191, 1973. (Editorial)

The isolation of a papovavirus, identical with SV 40, from the brain of two patients with progressive multifocal leukoencephalopathy is discussed. Neither patient had been exposed to SV 400 in poliovaccine, some early batches of which had been contaminated with SV 40. This papovavirus is identical in appearance to one previously isolated from the brain of a patient with progressive multifocal leukoencephalopathy, and to the BK virus from the urine of a patient with uriteric obstruction after renal transplantation. It would be of interest to know if BK virus can cause progressive multifocal leukoencephalopathy in debilitated patients, since the epidemiology of SV 40 is entirely different from that of the BK virus. The discovery of BK virus also raises the question whether there are unknown viruses which infect man but rarely if ever produce disease. (7 refs.) - *A. C. Schenker.*

2871 **GOTLIN, RONALD W.** Diazoxide therapy in the syndrome of Beckwith-Weidemann-Coombs. *Journal of Pediatrics*, 83(2):342-343, 1973. (Letter)

Observations relevant to the publication by Schiff and coworkers on the treatment with diazoxide and Sus-phrine in the Beckwith-Wiedemann-Coombs syndrome are offered. The influence of diazoxide therapy (5-15mg/kg/day) has been followed in a female with the syndrome; diazoxide has adequately controlled the clinical features of hypoglycemia without the persistence of basal hyperinsulinemia as reported by Schiff. Attempts to lower the dose of diazoxide below 15mg/kg during the first year of therapy and current attempts to lower the dosage below 5mg/kg have resulted in symptomatic, reactive hypoglycemia. The subject was controlled by diazoxide alone, whereas Schiff's subject required the addition of epinephrine as Sus-phrine. The glucose tolerance test also differs in the route of administration (oral vs i.v. glucose); and a third difference in the 2 patients is that of the blood insulin levels. It may be that these differences are characteristic of the individual patients and that a common therapeutic design in this syndrome is not feasible. (2 refs.) - *A. C. Schenker.*

University of Colorado Medical
Center
Denver, Colorado 80220

2872 **KING, ELENA A.; ALTER, AARON A.; SCHWARTZ, OSCAR; & FISHMAN, STEPHAN A.** Postexchange transfusion hepatitis in the newborn infant. *Journal of Pediatrics*, 83(2):341-342, 1973. (Letter)

Hepatitis following exchange transfusion is reported in 2 newborn infants. In both infants, the clinical and laboratory data strongly suggest the diagnosis of hepatitis contracted from blood used for exchange transfusion; one case was HB Ag positive and may have transmitted the disease to her mother through the oral route. The diagnosis was suggested by an elevated SGPT without any clinical signs or symptoms. The subclinical course of hepatitis in the newborn infant may result in instances of undetected anicteric and asymptomatic patients who are capable of transmitting HB Ag. (3 refs.) - *A. C. Schenker.*

Maimonides Medical Center
Brooklyn, New York

2873 **RASKA, K.; HELCL, J.; & SVANDOVA, E.** Epidemiology of infectious hepatitis. *American Journal of Diseases of Children*, 123(4):340-345, 1972.

The epidemiology of infectious hepatitis is reviewed in terms of forms, communicability, association with Australia antigen (HAA), prophylactic use of gamma globulin, and registration of the disease. In contrast to older opinions that most transfusion-associated hepatitis was serum

hepatitis, recent studies suggest that infectious hepatitis may be transmitted parenterally as frequently as serum hepatitis. The fecal-oral spread remains the most important and common mode of transmission of the infectious hepatitis. A history of contact with a known case of hepatitis or jaundiced person is found in about 20-30% of patients. The possible association of HAA with viral hepatitis may help in the control of infectious hepatitis, inasmuch as it is possible through the antigen to trace asymptomatic carriers. Immune serum globulin (in small doses), given in time, has proved effective in controlled field trials and in large-scale control measures in general practice. Large doses of immune serum globulin could be considered for individual cases and in special epidemiological situations only. A systematic surveillance of viral hepatitis in Czechoslovakia is described, and mortality and morbidity rates are shown. (26 refs.) - *A. C. Schenker.*

Ustav epidemiologie a mikrobiologie
Srobarova 48
Praha 10-Vinohrady, Czechoslovakia

2874 CARNE, STUART; DEWHURST, C. J.; & HURLEY, ROSALINDE. Rubella epidemic in a maternity unit. *British Medical Journal*, 1(5851):444-446, 1973.

An epidemic of rubella which was confined to the nurses of a maternity unit is described, and the measures taken to ensure that the disease would not spread to patients are presented. Following the occurrence of 3 cases (and later, a fourth) of clinically diagnosed rubella among the nursing staff, the sera of all women in early pregnancy attended to in the same unit were examined; the visits of women likely to be under 16 weeks pregnant were deferred to twice the normal incubation period. No further cases of rubella occurred, and there was no clinical or serological evidence that any women in early pregnancy at the time of the epidemic contracted the disease. Immune globulin was not given to susceptible personnel for fear of masking the continuation of the epidemic, but rubella vaccine was given. It is recommended that the immune status of doctors, nurses, or other attendants who come in close contact with patients in early pregnancy should be ascertained serologically and that seronegative persons be encouraged to accept vaccination. (7 refs.) - *A. C. Schenker.*

Queen Charlotte's Maternity Hospital
University of London
London W6 OXG, England

2875 MCCOLLUM, ROBERT W. Epidemiology of infections with type B virus. *American Journal of Diseases of Children*, 123(4):364-367, 1972.

The problem of infections with type B or serum hepatitis is discussed in the context of epidemiology. Physicians became increasingly aware of and concerned about the risk of serum hepatitis as medical practice experienced a marked rise in the use of blood. During recent years this problem has increased due to the growing parenteral drug use with the practice of sharing injection equipment. Data derived from officially reported cases of type B hepatitis fall far short of reflecting the true distribution of infection; it is quite likely that anicteric and asymptomatic infections far outnumber those accompanied by jaundice, particularly in the younger age group. The demonstration of oral transmission of type B hepatitis in 1967 and of its endemicity in a closed institution, together with the discovery of Australia, hepatitis-associated antigen, led to a new line of investigation on the subject of hepatitis epidemiology. Age, dose, and route of infection, immunologic deficiency, and genetic determinants have been implicated in the induction and maintenance of persistence among human infectious diseases; investigations are now seeking preventive measures for this disease. (24 refs.) - *A. C. Schenker.*

Yale University School of Medicine
New Haven, Connecticut 06520

2876 CAZAL, PIERRE; & ROBINET-LEVY, M. Investigation of apparently healthy carriers of Australia Antigen. *American Journal of Diseases of Children*, 123(4):383-386, 1972.

Screening for Australia antigen among blood donors at Montpellier, France, is reported. Each blood sample was tested by counterelectrophoresis; antigen was tested by antibodies with respective titers of 32 and 4, and antibody was tested by antigens with respective titers of 64 and 4. Each positive finding was tested by immunodiffusion for identity reaction. Antigen and antibody were titrated by successive dilutions followed by counterelectrophoresis and staining. The results revealed that frequency of chronic antigenemia is higher in populations from hot countries; medical and paramedical personnel are more apt to have chronic antigenemia and antibody presence; these frequencies are also higher in

urban populations; liability to chronic antigenemia is greater in males than in females, and liability to elaborate antibody is greater in females than in males. Hepatic disorders were found in only 10% of blood donors who carry the antigen. Apart from transmission by blood or tissue fluids, contagiousness of antigen carriers appears to be low. - *A. C. Schenker.*

Centre de Transfusion Sanguine
BP 1213 34 Montpellier, France

2877 **PHILLIPS, CAROL F.; PHILLIPS, CHARLES A.; HODGKIN, WILLIAM E.; FORSYTH, BEN R.; RUBIN, BEN A.; & GERAGHTY, MARGARET E.** Killed subunit influenza vaccine in children. *Pediatrics*, 52(3):416-419, 1973.

The clinical and serological responses of children to a new, purified subunit influenza vaccine which has been shown to be highly antigenic and well tolerated in adults are described. Of 33 children immunized with varying dosages of bivalent subunit vaccine, 12 had no detectable A_2 (Hong Kong variant), hemagglutination-inhibiting or complement-fixing preimmunization sera, and 23 had no detectable antibody; 31 developed fourfold or greater rises in A_2 antibody after immunization; 21 showed fourfold or greater rises to type B antigen. A booster dose 4 weeks after the immunization did not produce any rise in the antibody level in children with or without detectable preimmunization antibody. This new vaccine is recommended for further use in children. (12 refs.) - *A. C. Schenker.*

University of Vermont College
of Medicine
Burlington, Vermont 05401

2878 **ROE, THOMAS F.; KERSHNAR, ANN K.; WEITZMAN, JORDAN J.; & MADRIGAL, LUIS SALINAS.** Beckwith's syndrome with extreme organ hyperplasia. *Pediatrics*, 52(3):372-381, 1973.

A patient with Beckwith's syndrome is described who had severe neonatal hypoglycemia associated with massive pancreatic enlargement, and who later developed marked enlargement of one adrenal gland and a tumor of the umbilical stump. The patient weighed 4.12kg at birth and subsequently grew excessively; she had a facial-flame nevus, small head circumference, omphalocele, visceromegaly, clitoral enlargement, and hemihypertrophy. Intestinal malrotation was discovered at laparotomy, and lobulation of the right hemidiaphragm, suggesting a diaphragmatic defect, was seen on radiographs of the chest. Diffuse cytomegaly of the fetal adrenal cortex, persistent nephrogenic activity of the renal cortex, and hyperplasia and immaturing of the pancreatic acini, ducts, and islets were characteristic microscopic features. The gigantism, advanced bone age, and clitoral enlargement seen in this patient might be due to increased androgen secretion. (16 refs.) - *A. C. Schenker.*

Children's Hospital of Los Angeles
Los Angeles, California 90027

2879 **LANDRIGAN, PHILIP J.** Epidemic measles in a divided city. *Journal of the American Medical Association*, 221(6):567-570, 1972.

An evaluation of the efficacy of measles vaccine is presented in connection with a measles epidemic which occurred in Texarkana, a city bisected by the Texas-Arkansas state line. More than 95% of the cases were found on the Texas side of the line, where only 57% of children aged 1-9 years had been vaccinated. The spread of measles in this epidemic did not result from vaccine failure, but from inadequate use of vaccine. Preschool spread predominated in urban Texarkana, while school-age spread was seen principally in the suburban and rural areas. The vaccine failed in 27 out of 6,016 children vaccinated; 6 of these children had received vaccine with measles immune globulin prior to 1 year of age. The experience in Arkansas indicates that a community immunization campaign can deliver sufficient vaccine to all segments of a population to prevent an epidemic. (14 refs.) - *A. C. Schenker.*

Center for Diseases Control
Atlanta, Texas 30333

2880 **BARRETO, VICTORINO S. T.; & *KLATSKIN, GERALD.** Infectious and serum viral hepatitis: differentiation with serum IgM and thymol turbidity as criteria. *Journal of the American Medical Association*, 221(6):571-575, 1972.

The validity of IgM and thymol turbidity levels as criteria for distinguishing between infectious

hepatitis (IH) and long-incubation serum hepatitis (SH) was examined in 31 patients with IH and 65 patients with SH. The data confirmed previous reports that early in the course of the disease, serum IgM concentration is significantly higher in patients with short incubation (IH) than in those with SH infections. However, the overlap of values in the 2 groups was too great to permit the use of the IgM level as a criterion for distinguishing between these 2 types of infection. It was also observed that during the acute phase of the disease, thymol turbidity levels were significantly higher in patients with IH than in those with SH, but again there was sufficient overlap to render this test an unsatisfactory criterion for distinguishing IH and SH infections. In the present study, the levels of IgM and thymol turbidity late in the disease could not be correlated with the presence or absence of the antigen. (11 refs.) - *A. C. Schenker.*

*333 Cedar Street
New Haven, Connecticut

2881 **ROMANO, E. L.; HUGHES-JONES, N. C.; & MOLLISON, P. L.** Direct antiglobulin reaction in ABO-haemolytic disease of the newborn. *British Medical Journal*, 1(5853):524-526, 1973.

Quantitative studies were carried out on cord blood in 15 newborn infants with hemolytic disease (11 group, 4 group B) due to ABO incompatibility; ratios of anti-IgG molecules to IgG anti-A molecules on infant and adult A red cells and the number of anti-A or anti-B molecules on the red cells were determined. The results showed that the minimum number of IgG anti-A (or anti-B) molecules detectable on red cells by the antiglobulin test is about 150/cell for both cord and adult red cells. In the 15 cases presented, the amount of anti-A or anti-B found on the cells was about 0.25-3.5 antibody per ml red cells, with more than 0.55 in 5 infants. This degree of coating is much less than that found in Rh-hemolytic disease (0.4-18 microgm/ml). The present observations indicate that the ratio of anti-IgG molecules to anti-A molecules is the same with adult and infant A and is the same as that observed with anti-IgG and anti-Rh on Rh-positive red cells. The red cells of some group A infants with hemolytic disease due to anti-A were not agglutinated by an extract of *D. biflorus*, suggesting that A_2 infants, as well as A_1 infants, may be affected. It seems likely that IgG anti-A and anti-B molecules are more effective than anti-Rh molecules in the destruction of red cells. (17 refs.) - *A. C. Schenker.*

Instituto Venezolano de
Investigaciones Cientificas
Caracas, Venezuela

2882 **HAMILTON, E. I.** Lead in drinking water. *British Medical Journal*, 2(5867):664-665, 1973. (Letter)

Reference is made to the data presented by Crawford and Clayton regarding lead in drinking water and the lead content in human rib. The significance of lead content in bone may be open to doubt; differences exist in the mass of lead in cortical and trabecular bone; in many rib samples, the extent of trabeculation can vary considerably; and the factor of age is to be considered in bone studies. The daily intake of most elements present in U.K. drinking waters constitutes a negligible contribution to total intake provided by diet. There appears to be no evidence that intake of drinking water is harmful to populations residing in the various natural geological regions of the U.K. (6 refs.) - *A. C. Schenker.*

"Woodchurch"
Crapstone, near Yelverton
Devon, England

2883 **DICK, GEORGE.** Register of cases of subacute sclerosing panencephalitis. *British Medical Journal*, 3(5875):359-360, 1973.

Due to the establishment of an association between measles virus and subacute sclerosing panencephalitis (SSPE), a registrar of SSPE cases in England and Wales has been prepared and some details of the findings are presented. Up to the end of 1972, information has now become available on 26 cases which fulfill the diagnostic criteria of SSPE. The average age of onset in 25 of the children was 8½ years, the average intervals between the attack of measles and the onset of symptoms were about 6½ years. There were about twice as many males as females. Several neurologists have noted an apparent clustering in place and time of patients with SSPE. With the introduction of measles vaccine, it will be important to observe what happens in the next few years. (2 refs.) - *A. C. Schenker.*

British Postgraduate Medical
Federation
London WCIN 3EJ, England

2884 Pathogenesis of measles. *British Medical Journal*, 3(5873):187-188, 1973. (Editorial)

Differences in the morbidity and pathogenesis of measles in different geographic areas are discussed. The morbidity from measles has continued at a constant high level from 1940 to 1966; the mortality fell dramatically in many industrialized areas of Europe, North America, and Asia, but not so in tropical countries. Whereas measles in Britain under the age of 1 year is uncommon, a third of all cases in some of the African villages are seen in children between the age of 5 months and 1 year. The period of infectivity in Britain is relatively short compared to that in Kenya; in the latter case, the presence of giant cells appears to be an indication of the presence of the viral antigen. The main distinguishing features of measles in Africa (unusual skin changes) may be related to prolonged excretion of the virus. It is suggested that in African measles an impairment of cell-mediated immunity is associated with protein-calorie malnutrition, as a result of which there is a failure to eliminate virus from the tissues. (6 refs.) - *A. C. Schenker.*

2885 **HOLT, E. M.; BOYD, I. E.; DEWHURST, C. J.; MURRAY, J.; NAYLOR, C. H.; & SMITHAM, J. H.** Intrauterine transfusion: 101 consecutive cases treated at Queen Charlotte's Maternity Hospital. *British Medical Journal*, 3(5870):39-43, 1973.

Results of intrauterine transfusions during 4½ years and variations in practice from that employed in other reported series are discussed. The Ss comprised patients with severe rhesus isoimmunization in whom amniocentesis was performed and the liquor analyzed. Intraperitoneal transfusion was attempted on 101 fetuses and succeeded in 99; 47 (46.5%) babies survived the neonatal period. The practice in the series reported differs from others in the simplicity of the technique for localizing and transfusing the fetus. The maternal abdomen is screened vertically and, if necessary, horizontally, and the fetal skull, spine, and femora are identified. With a small fetus, it is advisable to take an x-ray picture. With full sterile precautions and under local anesthesia, a 16-gauge needle is passed through the maternal abdominal and uterine walls into the fetal abdomen. Suction is applied to the needle and ascitic fluid, if present, is removed; a vinyl catheter is threaded through the needle and Rh-negative blood is injected. The major problems in these transfusions are difficulties due to lack of expertise. (17 refs.) - *A. C. Schenker.*

Queen Charlotte's Maternity Hospital
London W6 OXG, England

2886 **LAURSEN, H. BAEKGAARD; & CHRISTENSEN, M. FJORD.** Immunoglobulins in normal infant born of severe hypo-gammaglobulinaemic mother. *Archives of Disease in Childhood*, 48(8):646-648, 1973.

The immunological maturation was studied in an infant born of a severely hypo-γ-globulinemic mother. The spontaneous increase in the immunoglobulins was observed in the infant during the first 6 months of life. In the cord blood there was less than 1mg/100ml each of IgG, IgA, and IgM. There were remarkable fluctuations of the immunoglobulin values from time to time, probably partly due to an infection of varicella at 3½ months and an upper respiratory infection 1 month later. The increase in immunoglobulins was observed during the first month and continued during the following months. (5 refs.) - *A. C. Schenker.*

University Clinic of Pediatrics
Arhus Kommunehospital, Denmark

2887 **BARLTROP, D.; COLES, G. V.; & MCCANCE, R.A.** Exposure of children to lead in Uganda. *Archives of Disease in Childhood*, 48(8):642-644, 1973.

Excessive lead content of feces in 4 Uganda children prompted an investigation of lead absorption through food in these children. Lead was detectable in the foodstuffs obtained from the home, exceeding acceptable limits compared with the standards for foodstuffs in the United Kingdom. Subsequent examinations of the bones of other children, however, did not confirm that their lead intakes had resulted from excessive absorption of lead. The slightly increased values found in some of the Ugandan bones may conceivably be due to the low calcium intakes of the children and to poor mineralization of the skeleton in consequence. (12 refs.) - *A. C. Schenker.*

St. Mary's Hospital Medical School
London W.2., England

2888 **BROWN, E. H.** Enterovirus infections. *British Medical Journal*, 2(5857):169-171, 1973.

Poliovirus types I, II, and III; Coxsackie group A, types 1-23, and group B, types 1-6; and ECHO types 1-30 are reviewed. Poliomyelitis is predominantly a disease of childhood; epidemics occurred in Britain, mainly due to type I, and about one-third of the paralytic cases were over the age of 15 years. Immunization has reduced the disease immeasurably in most countries, but it remains an important disease in the underdeveloped countries. With the exception of mumps, the enteroviruses are the only common cause of viral meningitis, and in Great Britain this means the Coxsackie and ECHO viruses. Enteroviruses can cause a wide variety of clinical illness and the full spectrum has not yet been fully elucidated, especially in neonates. With the exception of the polioviruses, however, in the other age groups the amount of serious disease due to enteroviruses is relatively small, and viral meningitis remains perhaps their most important manifestation. - *A. C. Schenker.*

H'ther Green and St. John's Hospital
London SE13 6RU, England

2889 **HOBSON, DEREK.** Acute respiratory virus infections. *British Medical Journal*, 2(5860):229-231, 1973.

A review of the clinical aspects of acute respiratory virus infections is presented. Particular types of virus appear to have a predilection for certain ages and certain parts of the respiratory tract. The clinical syndromes of coryza, influenza, virus sore throat, croup, acute bronchiolitis, and pneumonia are described. Most acute respiratory disease in young adult populations is no more than a nuisance. The untoward side-effects which occur in large-scale use of vaccines or drugs could not be justified against the low risk of these short trivial illnesses. The only indications for vaccination are to immunize against major pathogens capable of causing respiratory crippling, severe debilitation, or death, and to control pandemic spread. Influenza falls into these categories, but vaccination of those at special risk appears to be all that is necessary. At present, there is no effective chemotherapy against acute respiratory disease. - *A. C. Schenker.*

University of Liverpool
L69 3BX, Liverpool, England

2890 **BITHELL, J. F.; *DRAPER, G. J.; & GORBACH, P. D.** Association between malignant disease in children and maternal virus infections. *British Medical Journal*, 1(5855):706-708, 1973.

The association between virus infections in pregnancy and malignant disease in the child was analyzed in over 9,000 pairs of cases and matched control children. The estimated relative risk for influenza in this context was 1.52, with 95% confidence, and a tentative relative risk of about 3.7 for chicken pox. This refers to the number of children with tumors where mothers reported virus infections in pregnancy. When assessing the evidence as a whole, it is important to remember that influenza, chickenpox, and rubella were selected as being the most noteworthy. The total number of different infections is not large, and there is a possibility that certain viruses invading the mother are capable of initiating malignancy in the fetus. On the whole, it is emphasized that the number of children dying of malignant disease as a result of maternal virus infection is extremely small. (9 refs.) - *A. C. Schenker.*

*Department of Social Medicine
Oxford University
Oxford OX1 3QN, England

2891 **COCKBURN, W. CHARLES.** The epidemiology of viral hepatitis in tropical countries. *American Journal of Diseases of Children*, 123(4):345-349, 1972.

Limitations of the data on viral hepatitis reported from tropical countries are discussed, together with an analysis of the reported data. Similarities and differences in data from tropical and from temperate climates in 1967 are presented. There is evidence that viral hepatitis is as frequent (possibly more frequent) in tropical countries as in the temperate countries. Seasonal changes are slight in all parts of the world, and a higher incidence in tropical countries in the rainy season has not been noted. The proportion of cases varies widely in the older age groups, but no explanation can be offered for this fact. The higher death rates in tropical countries may be related to both malnutrition and a higher incidence of serum hepatitis. Cirrhosis of the liver is common in many tropical countries, and a number of patients are carriers of hepatitis-associated antigen. This is considered evidence of the enhanced severity of viral hepatitis in the tropics. (15 refs.) - *A. C. Schenker.*

2892 **BETTS, P. R.; ASTLEY, R.; & RAINE, D. N.** Lead intoxication in children in Birmingham. *British Medical Journal*, 1(5850):402-406, 1973.

An analysis of children who were found to have symptoms of lead intoxication in the Birmingham region from 1966-1971 is presented; data are presented on the incidence of anemia, abnormal radiological findings, and the seasonal variation in lead poisoning. Of the 38 children with a blood lead concentration greater than 37 microgm/100ml, 31 were aged 5 or below at the time of presentation. Of 8 children whose blood lead concentration exceeded 100 microgm/100ml, 7 were anemic; and of 7 children with lead levels of 60-100 microgm/100ml 5 were also anemic. Eight children presented with lead encephalopathy; the lead levels were all above 99 microgm/100ml. In 93% of children with a blood lead concentration above 60 microgm/100ml, a radiological diagnosis of lead intoxication could have been made when the child was first seen. It is recommended that the wrist, knees, and ankles should be radiographed in any child presenting with an unexplained encephalopathy. (14 refs.) - *A. C. Schenker.*

The Children's Hospital
Ladywood Middleway
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2893 **HIBBARD, LESTER T.** Maternal mortality due to acute toxemia. *Obstetrics and Gynecology*, 42(2):263-270, 1973.

Of 846 maternal deaths associated with pregnancy (exclusive of accidental death) occurring in the 16-year period 1957-72, when a gross maternal mortality of 0.040% was reported, 67 were due to the complications of acute toxemia. These deaths represent 7.8% of the gross mortality and 10.3% of the mortality due to obstetric causes. Twenty-five of the 67 patients had had 1 or more observed convulsions, and the remaining patients were either comatose when first seen or became comatose subsequently. The average age at death was 27.5 years, with 13 (19%) of the deaths occurring after age 35. Only 53% of minority patients but 79% of the remaining patients had received private care. Thirty-seven of the 67 patients had reached the thirty-eighth week of pregnancy at the time of hospital admission. The majority of patients receiving private care died either of cerebral hemorrhage or cerebral edema, including 23 of 27 private patients for whom a significant physician error contributed to death. In contrast, most patients not receiving private care died as a result of intravascular coagulation and defibrination or of hepatic necrosis possibly related to intravascular coagulation. (10 refs.) - *B. J. Grylack.*

John Wesley Hospital
Los Angeles, California 90007

2894 **SHARF, M.; EIBSCHITZ, I.; & EYLAN, E.** Latent toxoplasmosis and pregnancy. *Obstetrics and Gynecology*, 42(3):349-354, 1973.

Two hundred and twenty-eight women with abnormal obstetric histories were studied to clarify the role of latent maternal toxoplasmosis (LMT) in pregnancy and to determine the effects of routine prophylactic treatment. In 38 women (16.6%) the Sabin-Feldman dye test was positive in a titer of 1:64 to 1:1024, whereas it was positive in a titer of 1:64 in only 2 (1.1%) of 184 control women. In the women with bad obstetric history and a Sabin-Feldman test of 1:64 or higher who received antitoxoplasmic treatment, the antibody titer decreased or turned negative in 78.9% of cases, and there were 71% normal births. While only about 5% of untreated women with a titer of 1:64 or above will have normal deliveries, treatment increases the proportion of normal deliveries very significantly ($p<.001$). The findings suggest the existence of a relationship between latent *Toxoplasma gondii* infection, abortions, premature deliveries, and stillbirths and indicate that prophylactic treatment before pregnancy is advantageous. (29 refs.) - *B. J. Grylack.*

Rothschild Municipal Government Hospital
Aba Khoushy School of Medicine
Haifa, Israel

2895 **DUNN, LEO J.; & DIERKER, LEROY J.** Recurrent hydramnios in association with myotonia dystrophica. *Obstetrics and Gynecology*, 42(1):104-106, 1973.

A previously unreported association of recurrent hydramnios with myotonia dystrophica characterized 2 successive pregnancies of the same woman. The offspring of both pregnancies died 1

hour after the respective deliveries. The proposita was noted to have bilateral ptosis, weakness of the frontal muscles, expressionless facies, marked weakness of the sternocleidomastoid muscles, marked hyporeflexia, and a myotonic grip. There was a history of cataracts in her family, and her 19-year-old half sister had severe muscular weakness. Electromyography revealed "dive-bomber" high frequency discharges typical of myotonia. Although a definite diagnosis of myotonia was not established in either fetus, the findings indicated that the condition did exist and was probably reflected in the recurrent hydramnios. (9 refs.) - *B. J. Grylack.*

Virginia Commonwealth University
Richmond, Virginia 23219

2896 CAVELL, B.; SVENNINGSEN, N.; THULIN, T.; & SCHERSTEN, B. Rapid detection of neonatal hypoglycaemia. Evaluation of Dextrostix Reflectance Meter system. *Archives of Disease in Childhood*, 48(5):398-400, 1973.

Use of the Dextrostix Reflectance Meter to measure blood glucose in 106 newborns showed this system to underestimate blood glucose values considerably. When the back instead of the front of the standardization strip was used to calibrate the instrument, agreement between this system and the glucose oxidase method improved. The results indicate that the unmodified Dextrostix Reflectance Meter does not detect neonatal hypoglycemia significantly better than the Dextrostix reagent strip does. However, calibration of the low-range scale adequately with an established laboratory method against a pertinent clinical material provides an easy, rapid, and more accurate method. (7 refs.) - *B. J. Grylack.*

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221 85 Lund, Sweden

2897 Smoking hazard to the fetus. *British Medical Journal*, 1(5850):369-370, 1973. (Editorial)

There is no longer any reasonable doubt that smoking during pregnancy has adverse effects on the developing fetus, ranging from retardation of fetal growth and prematurity to increased risk of perinatal death. According to a recent *in vitro* study of the influence of carbon monoxide on the oxygen-carrying capacity of fetal blood, carboxyhemoglobin in fetal blood shifts the oxygen dissociation curve to the left, with a consequent diminution of the fetal oxygen reserve. Apart from the problem of survival itself, the long-term effects of carbon monoxide poisoning on the offspring of mothers who smoked during pregnancy must be considered. Parallel studies carried out with humans and rabbits have indicated that serious developmental defects do not occur unless carboxyhemoglobin levels are well above those normally found among women smokers. There is still some conflict of opinion as to whether or not the offspring of mothers who smoked in pregnancy show any signs of intellectual handicap. (18 refs.) - *B. J. Grylack.*

2898 RENIER, W.; GABREELS, F.; MOL, L.; & KORTEN, J. Agenesis of the corpus callosum, chorioretinopathy and infantile spasms (Aicardi syndrome). *Psychiatria, Neurologia, Neurochirurgia*, 76(1):39-45, 1973.

Two female children with Aicardi syndrome manifested the characteristic agenesis of the corpus callosum, chorioretinopathy, infantile spasms, mental deficiency, cortical heterotopia, vertebral anomalies, and lack of family history. The patients showed clinical as well as electroencephalographic asymmetry. The syndrome shows a strong resemblance to toxoplasmosis. Positive toxoplasma tests were never found for these girls, however, nor were there indications for other infections which might have caused eye pathology. The mothers of both patients mentioned an influenza-like infection during early pregnancy. (25 refs.) - *B. J. Grylack.*

St. Radboud Hospital
Nijmegen, The Netherlands

2899 BAUER, D. J. Antiviral chemotherapy: the first decade. *British Medical Journal*, 3(5874):275-279, 1973.

In the decade in which it has been in existence, antiviral chemotherapy has made substantial advances and has led to the effective treatment of diseases which once threatened life and loss of sight, yet its impact on therapeutics cannot com-

pare with that achieved by antibacterial chemotherapy. In the future, the experimental use of methisazone and idoxuridine and related compounds in the treatment of adenovirus infections, particularly conjunctivitis, of idoxuridine and the other nucleosides in the treatment of infectious mononucleosis and in the prophylaxis of recurrent herpes, and of 6-azauridine in measles and subacute sclerosing panencephalitis may offer further possibilities of success for antiviral chemotherapy. There is a great need for an effective drug against influenza and for drugs active against the various upper respiratory infections caused by viruses, and progress in these areas will constitute the major challenge to antiviral chemotherapy in its second decade. (28 refs.) - *B. J. Grylack.*

Wellcome Research Laboratories
Beckenham, Kent BR3 3BS, England

2900 DAVIES, D. P.; GOMERSALL, R.; ROBERTSON, R.; GRAY, O.P.; & TURNBULL, A. C. Neonatal jaundice and maternal oxytocin infusion. *British Medical Journal*, 3(5878):476-477, 1973.

A prospective study was carried out on 78 healthy, full-term infants, 28 born to mothers with spontaneous onset of labor with no oxytocic drugs administered, 14 born to mothers having spontaneous onset of labor and receiving oxytocin to expedite labor, and 36 born to mothers whose labor was induced artificially by amniotomy followed immediately by intravenous oxytocin infusion. On the second and fifth days, the infants of mothers in the third group had a mean total bilirubin level which was significantly higher ($p<0.05$) than that of the first group of infants. The mean bilirubin level of the second group of infants, however, was not significantly raised as compared with the first group. While it is possible that the effect of oxytocin may be dose-dependent, a cumulative effect of oxytocin and other administered drugs may have been operative, or the differences in corticosteroid status of the 3 infant groups may be responsible for the results. (9 refs.) - *B. J. Grylack.*

Welsh National School of Medicine
Cardiff CF 4 4XW, Wales

2901 MCCONNELL, J. B.; GLASGOW, J.F.T.; & MCNAIR, R. Effect on neonatal jaundice of oestrogens and progestogens taken before and after conception. *British Medical Journal*, 3(5881):605-607, 1973.

The effects of estrogens and progestogens taken before and after conception on plasma bilirubin concentrations were studied in 182 bottle-fed and breast-fed infants during the first week of life. Mean bilirubin concentrations were higher on the third day but by the fifth day decreased by 32% in bottle-fed as compared to 3% in breast-fed infants. Infants whose mothers had not taken the pill breast-feeding had a significantly higher mean bilirubin concentration as compared with bottle-fed infants on the fifth day, while significantly higher ($p<0.01$) mean concentrations were seen on the third and fifth days in bottle-fed but not breast-fed infants of mothers who had used the pill. The 16 infants whose mothers had received progestogen therapy during early pregnancy had a very significantly higher ($p<0.01$) mean bilirubin concentration than was present in the bottle-fed or breast-fed infants of mothers who had or had not taken the pill. The findings suggest that breast-feeding and prior maternal use of the pill each exert an icterogenic effect on the newborn. (15 refs.) - *B. J. Grylack.*

Royal Maternity Hospital
Belfast BT12 6BJ, Northern Ireland

2902 SCHILD, G. C.; PEREIRA, MARGUERITE S.; CHAKRAVERTY, PRATIMA; COLEMAN, MARION T.; DOWDLE, W. R.; & CHANG, W. K. Antigenic variants of influenza B virus. *British Medical Journal*, 4(5885):127-131, 1973.

While little antigenic variation in influenza B viruses was seen from 1967 to 1971, the appearance in December 1972 of a sporadic influenza isolate from Hong Kong, B/Hong Kong/5/72, showing major differences in hemagglutinin antigens as compared with earlier isolates, has stimulated awareness of the possibility of future epidemics associated with influenza B. The neuraminidase antigen of the new isolate was found to be similar to those of former influenza B isolates. Strains resembling B/Hong Kong/5/72 were isolated subsequently in Australia and the United Kingdom, and "intermediate" strains were recovered first in West Germany and then in

several areas, including the United Kingdom and Japan. A high proportion of the population in the United Kingdom and the United States was shown to lack antibody to B/Hong Kong/5/72-like viruses, and inactivated influenza vaccines containing the previously prevalent influenza B strains stimulated hemagglutination-inhibiting antibody to B/Hong Kong/5/72 in only a small proportion. The data suggest that persons at high risk during the coming influenza season be immunized against B/Hong Kong/5/72-like viruses. (15 refs.) - *B. J. Grylack.*

W.H.O. World Influenza Centre
National Institute for Medical Research
Mill Hill
London NW7 1AA, England

2903 **DEVIVO, DARRYL C.; PAGLIARA, ANTHONY S.; & PRENSKY, ARTHUR L.** Ketotic hypoglycemia and the ketogenic diet. *Neurology*, 23(6):640-649, 1973.

Ketotic hypoglycemia can be diagnosed by the occurrence of convulsion after a dietetic ketotic provocation. A specialized ketogenic diet has been developed to establish seizure control in such hypoglycemias. The patient may be put on a high-fat diet if the total carbohydrate potential in the diet is individually adjusted. Hypoglycemia when accompanied by hyperketomenia may reflect 2 metabolic conditions: ketotic hypoglycemia as a metabolic consequence of reduced availability of gluconeogenic precursors, or occurring after a few days on a ketogenic diet when elevated ketone bodies may act as insulin secretogogues producing an increase in hepatic glycogen stores and decreased circulating plasma glucose concentration. These 2 hypoglycemic states may be easily differentiated by response to administered glucogen. The ketogenic diet regime is a useful treatment for ketotic hypoglycemia. (19 refs.) - *C. Wares.*

Washington University School of Medicine
St. Louis Children's Hospital
St. Louis, Missouri

2904 **DORFMAN, LESLIE J.** Cytomegalovirus encephalitis in adults. *Neurology*, 23(2):136-144, 1973.

Cytomegalovirus (CMV) infection is a special risk for neonates, adults with debilitating diseases such as malignancies, and those receiving immunosuppressant or steroid hormone therapy. Benign or lethal encephalitis may develop as a complication of disseminated CMV. Four adult patients with the complication were examined for pathogenetic purposes. Three of the Ss were renal homograft recipients being treated with immunosuppressant medications. All 4 were found to have diffuse glial-nodule encephalitis without meningitis or perivascular inflammatory cell infiltration. Two of the brains contained cytomegalic cells with intranuclear inclusions. Increasing awareness of the role of CMV in immunologic derangement pathogenesis will hopefully lead to a better definition for its diagnosis and treatment. (38 refs.) - *C. Wares.*

Stanford University Medical Center
Stanford, California

2905 **RENNICK, PHILLIP M.; NOLAN, DAVID C.; BAUER, RAYMOND B.; & LERNER, A. MARTIN.** Neuropsychologic and neurologic follow-up after herpesvirus hominis encephalitis. *Neurology*, 23(1):42-47, 1973.

Herpesvirus hominis encephalitis is a focal inflammatory, necrotic lesion of the brain which may be diagnosed by expanded biopsy criteria in order to isolate the virus. Five patients diagnosed as *H. hominis* were given neuropsychologic and neurologic follow-up assessments in order to determine the functional effects of the virus. During their illness, 4 patients were comatose, 4 had seizures, and 3 had paralyses. All were treated with intravenous idoxuridine. The assessments showed 2 abnormal electroencephalograms, residual neuropsychologic deficits in 2 patients, and 3 normal neurologic examinations. One patient retained dysarthria, nystagmus, and poor convergence, and another retained muscle weakness and Babinski signs; both of these patients revealed mild to moderate deficits in cerebral function. Evaluation of functional recovery after *H. hominis* encephalitis requires thorough neurologic, electroencephalographic, and neuropsychologic testing. (11 refs.) - *C. Wares.*

Harper and Detroit General Hospitals
Wayne State University School of Medicine
Detroit, Michigan

2906 **DAMASIO, ANTONIA R.; DE CARVALHO, VALENTIM; SOUSA CALHAU, E.; & CASTRO-CALDAS, ALEXANDRE.** Transient fluent aphasia after acute meningitis. *Neurology*, 23(2):171-173, 1973.

Focal aphasic syndromes are occasionally found in situations of generalized insult to the nervous system, such as in infection, metabolic disturbance, or raised intracranial pressure. A case involving the syndrome of fluent aphasia with alexia, agraphia, acalculia, right-left disorientation, and finger agnosia has been noted in a patient after acute meningitis with prolonged coma. The distinctive and prolonged clinical picture of the syndrome provided an opportunity to compare the symptoms in detail with current views on neurologic bases of cognitive and linguistic activity. The combination of symptoms and effects was associated with a focal dysfunction of the posterior speech region involving the angular gyrus and the posterior part of the first temporal gyrus in the dominant hemisphere. The transitory nature of the syndrome was both surprising and unexplained. (13 refs.) - *C. Wares.*

University of Lisbon (Medicine)
Lisbon, Portugal

2907 **WARKEL, RAPHAEL L.; RINALDI, CHARLES F.; BANCROFT, WILLIAM H.; CARDIFF, ROBERT D.; HOLMES, GEORGE E.; & WILSNACK, ROGER E.** Fatal acute meningoencephalitis due to lymphocytic choriomeningitis virus. *Neurology*, 23(2):198-203, 1973.

Human pathogenesis of the lymphocytic choriomeningitis virus (LCM) was established in 1935, and has been given a distinct taxonomic grouping as the prototype of the adenoviruses. LCM usually produces benign aseptic meningitis and is rarely fatal. Histopathologic and virologic documentation of a case of acute LCM meningoencephalitis due to lymphocytic choriomeningitis virus manifested lymphocytic and monocytic infiltrates in the meninges and Virchow-Robin spaces and focal inflammatory nodules in the pons and medulla. Immunofluorescent techniques were used to view the viral antigen in the meninges and in the cytoplasm of the cerebral neurons. The presence of LCM may be detected by finding virus or virus-specific antigens in the patient's tissues, and antibodies in serum. (19 refs.) - *C. Wares.*

2908 **NOTERMANS, SERVAAS L. H.; TIJL, WILLEM F. J.; WILLEMS, FRANS T. C.; & SLOOFF, JOOP L.** Experimentally induced subacute sclerosing panencephalitis in young dogs. *Neurology*, 23(5):543-553, 1973.

Subacute sclerosing panencephalitis (SSPE) is thought to be caused by a measles-like virus. Dogs and ferrets experimentally inoculated intracerebrally with SSPE virus developed SSPE-like encephalitis in nearly all cases, but no measles-specific antibodies could be found. The electroencephalograms of the test animals closely resembled the van Bogaert-Rodermecker-Cobb pattern exhibited in human SSPE cases. A control group of dogs inoculated with measles virus had no signs of encephalitis but did produce measles-specific antibodies. Animals infected with the SSPE virus provide an excellent basis for analyzing development of the abnormal SSPE EEG pattern. (20 refs.) - *C. Wares.*

Radboud Hospital
University of Nijmegen
The Netherlands

2909 **LOVETT DOUST, J. W.; & PODNIEKS, I.** Cerebral haemodynamic factors in mentally retarded children. *Journal of Mental Deficiency Research*, 17(2):123-128, 1973.

Cerebral hemodynamics was estimated for 19 MR children (IQ approximately 50, CA range 7 to 18 years) by a quantified averaging method of rheoencephalography (REG), with REG records from 10 apparently normal siblings of MR children and from 4 other children, all matched for CA, used for comparison. Four psychological tests were administered, and simultaneous EEG records were obtained. Thirty waveforms, the REG output of each S, were measured for amplitude, percent rise time, inflow angles, and heart-to-head circulation times. All of the control children but only 7 of 18 MRs had EEG records which were acceptably normal. Of the 11 remaining recordings, 6 contained runs of spike and wave activity, and 5 were typical of other epileptic variants. The poorer EEG quality of the MR children as compared with the controls was matched by the significant (5%) impairment in their REG measurements and their lower test scores. (26 refs.) - *B. J. Grylack.*

Clarke Institute of Psychiatry
University of Toronto
Toronto, Canada

2910 SWAIMAN, KENNETH F.; HALVERSON, DEA; SHARP, HARVEY L.; BRUNNING, RICHARD D.; & LOCKMAN, LAWRENCE A. Sea-blue histiocyte associated with posterior column dysfunction in childhood. *Neurology*, 23(5):474-477, 1973.

Examination of a patient with a clinical pattern of posterior column dysfunction revealed sea-blue histiocytes which were determined to be the result of storage of ceroid lipofuscin material. Neuroaxonal dystrophy of the axons in the cuneate and gracile nuclei or accumulation of ceroid-lipofuscin material in this area appeared to be the cause of the patient's clinical pattern. Although the patient had a low serum vitamin E level, uptake of oral vitamin E was normal. Large doses of vitamin E gave the patient normal serum levels, but did not alter stores of ceroid lipofuscin in bone marrow or liver. The relationship between vitamin E deficiency and ceroid-lipofuscin deposition has been clearly established but is not yet understood. (11 refs.) - *C. Wares*.

University of Minnesota Medical School
Minneapolis, Minnesota 55455

2911 ROLAND, F. S.S.P.E. and avian antigens. *Lancet*, 2(7824):319-320, 1973. (Letter)

Experimental studies of subacute sclerosing panencephalitis (SSPE) indicate the involvement of an unusual measles infection with persistence of the virus with raised measles antibody titers as well as a second, precipitating factor in rural males that may be associated with chickens, pet birds, or pigeons. Humans exposed to avian antigens may be stimulated through the respiratory tract to produce several types of antibody, depending upon the blood group P. The possibility that the constant challenge by the strongly immunogenic avian droppings material with bacteria possessing the blood group substances A, B, H (O), and P_1 (P+) stimulates production of immunoglobulin G and M antibodies in competition with the production of the measles antibodies necessary for protection against an aggravation of the latent measles state remains to be verified. The prevalence of SSPE in males has not yet been explained. (4 refs.) - *B. J. Grylack*.

Brown University Memorial Hospital
Pawtucket, Rhode Island 02860

2912 ARNSTEIN, ELLIS J.; & WEDGWOOD, RALPH J. Meningitis and brain tumour. *Lancet*, 2(7823):262-263, 1973. (Letter)

A white female first hospitalized at age 22 months for culture-positive *Hemophilus influenzae* type B meningitis and cured with intravenous ampicillin was readmitted 14 months later with a history of fever, headache, and vomiting and was diagnosed as suffering from pinealoma. Although this sequence of events may have been coincidental, prior infection might influence tumor development in several ways. The inflammatory process could protect against tumor development by breaking down the blood-brain barrier sufficiently to reduce the degree of "immunological privilege" of the brain, but, alternatively, an immune response (graft-versus-host) has been shown to activate latent oncogenic viruses. (3 refs.) - *B. J. Grylack*.

University of Washington School of Medicine
Seattle, Washington 98195

2913 FUJITA, KIMIO; TERASHIMA, SHIGENOBU; & MAYUMI, MAKOTO. Unrecognised spread of hepatitis-B antigen. *Lancet*, 2(7823):259, 1973. (Letter)

The results of a search for hepatitis-B antigen and antibody in a rural community in which tattooing and drug abuse were unknown and a repetition of the survey a year later suggested that approximately 0.8% of the population were B-antigen carriers and that approximately 0.4% or more became antigen positive in turn. No epidemic of hepatitis was recorded. (2 refs.) - *B. J. Grylack*.

Saku Central Hospital
Minamisaku Usuda
Nagano, Japan

2914 BRZOSKI, W. J.; MIKULSKA, B. E.; BIEDRZYCKA, R.; ROSZKOWSKA, K.; RUDKOWSKI, Z.; RABENDA, C.; OZIEMSKA-LOZINSKA, H.; & DEBSKI, R. Hepatitis B in children. *Lancet*, 2(7823):259, 1973. (Letter)

Two hundred children with acute viral hepatitis and 50 children with chronic hepatitis were examined for the presence in sera of hepatitis-B antigen (HBAg), by immunoelectroosmophoresis,

and of anti-HBAg antibody of "nuclear" specificity (NHBAb), by indirect immunofluorescence. Of the group of 200 patients, 191 (95.5%) were negative for HBAg and NHBAb; the remaining 9 were positive for NHBAb, and 6 of them were also positive for HBAg. Of the second group, HBAg was found in 27 (69%) of 39, and NHBAb was found in all 39. The data suggested that approximately 95% of cases of acute viral hepatitis in children are not related etiologically to hepatitis virus type B infection, whereas all cases of chronic hepatitis in children seemed to be related to type B infection. (3 refs.) - *B. J. Grylack.*

State Institute of Hygiene
Warsaw 36, 00-791, Poland

2915 PICCIOTTO, L.; ROMANO, E.; RUGGIERO, G.; GALANTI, B.; & GIUSTI, G. Antibody response to A/England/42/72 influenza vaccine. *British Medical Journal*, 4(5885):169, 1973.

The sera response of 15 Ss never treated with influenza vaccine to doses of inactivated influenza vaccine (A/England/42/72) were tested for antibody content to homologous and to A/Hong Kong/68 virus by means of the standard hemagluttination inhibition test. The results in most Ss were satisfactory increases in antibody level against both A/England/42/72 and A/Hong Kong/68. The positive cross-reacting response suggests that the A/England/42/72 virus has a good antigenic potency and that the drift in antigenic content between the 2 viruses is moderate. - *C. Wares.*

Richardson-Merrell SpA
Clinica delle Malattie
Infective
1 Facolta di Medicina
Naples, Italy

2916 DAVIDSON, D. C.; FORD, J. A.; & MCINTOSH, W. Neonatal jaundice and maternal oxytocin infusion. *British Medical Journal*, 4(5884):106-107, 1973.

The suggested association between excessive neonatal bilirubin levels and maternal oxytocin infusion has been tested and found unsubstantiated. However, any possible association between maternal oxytocin infusion and neonatal jaundice should be investigated thoroughly. - *C. Wares.*

Stobhill General Hospital
Glasgow, Scotland

2917 HEYWORTH, B. Pathogenesis of measles. *British Medical Journal*, 3(5882):693, 1973. (Letter)

The previous explanation of the pathogenesis of African measles associated the disease with the impairment of cell-mediated immunity by protein-calorie malnutrition, but during a B.C.G. trial in the optimal-weight season in seasonally-malnourished Gambia to determine skin reactivity to tuberculin, nearly half the Ss tested developed clinical measles during the season. The disease itself was shown to affect the nutritional condition of the patients drastically. (2 refs.) - *C. Wares.*

M.R.C. Laboratories
Fajara
The Gambia, West Africa

2918 DIOSI, PETER; & HERZOG, GEORGETA. Protection of cytomegalovirus-infected cells by IgG antibody. *British Medical Journal*, 3(5881):638, 1973.

Experiments on immunological destruction *in vitro* of ground squirrel cell cultures infected with cytomegalovirus (CMV) have shown that the major portion of antibody activity against CMV inclusion cells lies in the IgM fraction. IgG antibody molecules (either maternally or therapeutically supplied) are found to have a blocking effect, which may protect CMV inclusion cells against lytic action of IgM antibodies. Although humans receive IgG from their mother at birth, it does not confer protection against CMV inclusion cells, nor are commercial preparations that provide mostly IgG and virtually no IgM therapeutically effective. (4 refs.) - *C. Wares.*

Timisora
Romania

2919 ELKELES, A. Aetiology of Reye's syndrome. *British Medical Journal*, 3(5881):640, 1973. (Letter)

The cause of Reye's syndrome, characterized by cerebral edema without cellular infiltration or demyelination and fatty degeneration of the liver, is unknown. Experimental aseptic encephalitis was produced in rabbits by injection of human bone marrow emulsion; no symptoms were produced by injection of animal bone marrow. In an independent experiment a similar encephalitis was pro-

duced in rabbits by injection of lymphadenoma nodes into their brains. Our experiment indicates that there is no specific viral cause for lymphadenoma. In neither experiment was it possible to transmit the disease from rabbit to rabbit. Some investigators have suggested that eosinophil cells in lymphadenoma nodes and in human bone marrow may contribute to the encephalitis. The syndrome may also be the result of a severe antigen-antibody reaction. These experiments may be of use in elucidating the cause of the syndrome and in formulating treatment. (4 refs.) - *N. Jarvis.*

Prince of Wales's General Hospital
London N.15, England

2920 JOHNSTON, P.G.B. Aetiology of Reye's syndrome. *British Medical Journal*, 3(5881):640, 1973. (Letter)

Etiological implications of association of Reye's syndrome with acute lymphoblastic leukemia, microangiopathic hemolytic anemia, and hypothermia are derived from a case history of a death from the syndrome during complete hematological remission. Unusual distribution of fatty degeneration suggested reaction to a viral agent. Induced immunosuppression in treated acute lymphoblastic leukemia may provide conditions for such a response, as bone marrow depression increases susceptibility to viral infection. Reye's syndrome may represent such an abnormal response to viral challenge in the instance of disordered immunity of any origin. (3 refs.) - *C. Wares.*

Hospital for Sick Children
London WC1, England

2921 SAXENA, S. R. Measles. *British Medical Journal*, 3(5881):632-633, 1973. (Letter)

A review of the pathogenesis of measles virus reveals extreme human susceptibility and a high adequacy of resistance. In a study of measles cases in India, distinct differences in severity of attack were noted in children of lower and higher nourished groups, with the former group suffering more numerous serious clinical symptoms associated with the viral infection. The pathogenesis of measles is still unknown and the need for increased study and management is indicated. (2 refs.) - *C. Wares.*

Queen Elizabeth Hospital for Children
London E2, England

2922 GHOSH, A.; & HUDSON, F. P. Neonatal jaundice and maternal oxytocin infusion. *British Medical Journal*, 3(5881):636, 1973. (Letter)

The incidence of neonatal hyperbilirubinemia is apparently increased when labor is induced with an intravenous oxytocic agent. A revised induction method with reduction in oxytocin dosage at Fuzakerley Hospital, Liverpool, is noted to have virtually eliminated neonatal hyperbilirubinemia of unknown etiology at that hospital. (1 ref.) - *C. Wares.*

Fazakerley Hospital
Liverpool 9, England

2923 GRIST, NORMAN R. Rubella surveillance: recent data from Scotland. *British Medical Journal*, 3(5881):636, 1973. (Letter)

Rubella surveillance in Scotland has revealed large scale outbreaks in the Edinburgh area in 1972 and in the Glasgow area in 1973. The latter outbreak included the incidence of a large number (increase) of rubella cases in pregnancy, which is expected to result in either a greater number of selective pregnancy terminations or an increase in embryopathies related to rubella. (2 refs.) - *C. Wares.*

Ruchill Hospital
Glasgow, Scotland

2924 LEWKONIA, K. K.; & JACKSON, A. A. Infantile herpes zoster after intrauterine exposure to varicella. *British Medical Journal*, 3(5872):149, 1973.

Infantile herpes zoster may develop in association with intrauterine exposure to varicella (*Herpesvirus varicellae*). A case is described in which an 18-month-old male child developed herpes zoster ophthalmicus. The mother had developed varicella in the eighth month of pregnancy, and the child at 6 months of age was in contact with a 7-year-old brother with varicella. Primary subclinical infection likely occurred on either of these occasions, and was reactivated at 18 months of age. (5 refs.) - *C. Wares.*

University College Hospital
London WC1E, 6AU
England

2925 **PARKER, J. E.; & ROCKERBIE, R. A.** Infection with E.B. virus. *British Medical Journal*, 2(5868):715, 1973. (Letter)

A leading article in the *British Medical Journal* (31 March, p. 757) stated that since most leukemic children examined did not show antibody to E.B. virus, a common viral etiology for infectious mononucleosis and acute leukemia appears improbable. We have observed a case of acute childhood leukemia showing a patterned inverse relationship in fluctuation between serum IgM and absolute blast count in the peripheral blood, which may represent a faltering response in the humoral immune system to specific leukemia antigen against an unidentified virus. Experiments with an outbred strain of animals might be useful in investigating whether inability to produce leukemia antigen antibodies is characteristic of lymphoblastic leukemia. (2 refs.) - *N. Jarvis.*

North Vancouver
British Columbia, Canada

2926 **CARGILL, J. S.** Treatment of bacterial meningitis. *British Medical Journal*, 2(5868):716, 1973. (Letter)

The suggestion of cephaloridine as an alternative treatment in cloxacillin-resistant neonatal staphylococcal meningitis is questionable. A previously noted cross-resistance between methicillin, cloxacillin, and cephaloridine would seem to contraindicate cephaloridine in such cases of bacterial meningitis in the absence of *in vivo* evidence differing from that noted *in vitro*. (1 ref.) - *C. Wares.*

Royal Infirmary
Glasgow, Scotland

2927 **LAMBERT, PETER M.** Meningococcal meningitis. *British Medical Journal*, 2(5868):716, 1973. (Letter)

Meningococcal infection is cited as the main cause of pyogenic meningitis. Statistics reveal a marked recrudescence of meningococcal meningitis in England since 1967. Awareness of this trend will serve to alert clinicians who have the responsibility of first diagnosis of illness. (4 refs.) - *C. Wares.*

Office of Population Censuses
and Surveys
Medical Statistics Division
London WC2, England

2928 **DIOSI, PETER; & DAVID, CAMELIA.** Immunological destruction in vitro of cytomegalovirus infected cells. *British Medical Journal*, 2(5862):364, 1973. (Letter)

Immune reaction mechanisms were investigated in ground squirrel kidney cell cultures inoculated with a ground squirrel cytomegalovirus strain and treated with antiserum as viral cytopathic lesions became apparent. A slow lysis of the infected cells was observed after exposure to fresh positive serum which was not seen in uninfected control cells. When guinea pig complement was added to inactivated serum, its cytologic properties were restored. No lysis occurred in infected cells after inactivation for 30 min. at 56 degrees C or in absence of complement, suggesting that the cytologic substance produced was antibody and the phenomenon observed immunological destruction *in vitro* of cytomegalovirus-infected cells. Whereas in immune depressed hosts inclusion bearing cells are often scattered among organs and tissues, in this experiment they were encountered only in the sheet lining the excretory salivary ducts, possibly indicating absence of effective complement-fixing antibodies at these sites. - *N. Jarvis.*

Medical Research Centre
Timisoara, Romania

2929 Iodine-125 in thyrotoxicosis. *Lancet*, 2(7826):426, 1973.

Despite the apparent greater selectivity of iodine-125 in its irradiation of the thyroidal cell in the management of thyrotoxicosis, preliminary reports of iodine-125 therapy in Israel and in Glasgow, Scotland, suggest that the problems with this radionuclide are not unlike those experienced with iodine-131. Two dosage schedules are advocated, and dosimetry is imprecise. Iodine-125 is no cheaper and evidently no safer than iodine-131. A controlled clinical evaluation should be conducted to show definitively whether or not iodine-125 has clinical advantages over iodine-131. (25 refs.) - *B. J. Grylack.*

2930 **KEMPER, THOMAS L.; LECOURS, ANDRE-ROCH; GATES, MARGUERITE J.; & YAKOVLEV, PAUL I.** Retardation of the myelo- and cytoarchitectonic maturation of the brain in the congenital rubella syndrome. In: Nurnberger, John I.,

ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 3, pp. 23-62.

Histoanatomical criteria of maturation of the human brain from birth at term through the first decade of life are reviewed in relation to 2 rubella cases; as compared with age-matched controls, deviations are demonstrated in a 9-year-old and in a 5.5-month-old child. Both children were exposed to rubella infection in infancy. On the basis of this study and clinical, autopsy, and tissue culture studies reported in the literature, retardation of growth and psychomotor maturation of infants and children is an essential feature of the congenital rubella syndrome. In the brain this affects the maturation of nerve cells and delays myelination. The latter is associated with a paucity of premyelination oligodendrogliosis. Two mechanisms are possibly involved in the encephalopathy: an inhibition of cell replication affecting the number of oligodendroglial cells; and the nonspecific effect of delayed maturation, possibly due to chronic viral infection. (34 refs.) - *A. C. Schenker.*

Elmer E. Southard Laboratory of
Normal and Pathological Anatomy
Waverley, Massachusetts

2931 **KELSEY, FRANCES O.** Drugs in pregnancy and their effects on pre- and postnatal development: In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 13, pp. 233-243.

The effects of drugs taken by the mother during pregnancy are reviewed with special emphasis on teratogenicity. Drugs given during the period of rapid organogenesis may induce developmental defects; drugs given late in pregnancy may give rise to a variety of toxic manifestations similar to those known to occur in adults, but sometimes unique to the neonate, particularly the premature infant. The folic acid antagonist aminopterin (used in the treatment of leukemia) was one of the first to be recognized as a teratogen. Malformations have also occurred (but not invariably) after the use of antimetabolites and alkylating agents in the treatment of cancer. The virilizing effect on the fetus of progestins and certain hormone preparations is known. The teratogenic action of thalidomide appeared to be at its peak between days 20 and 36 of pregnancy, causing malformation of limbs and defects including cardiac, renal, and intestinal anomalies. The significance of teratological findings in animals such as rats and mice has been challenged with regard to the safety of the drug for humans; subhuman primates are being considered for such experiments. The screening of aborted fetuses might also help to establish teratogenicity. (39 refs.) - *A. C. Schenker.*

Bureau of Drugs
Food and Drug Administration
Rockville, Maryland

2932 **KURLAND, LEONARD T.** Methylmercury sources, mode of action and clinical and pathological effects on the developing nervous system. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 16, pp. 283-297.

The basis for concern over the effects of methylmercury (in fish) is reviewed. Methyl-mercury has considerable stability in tissues, owing to its covalent bond between C and Hg, which accounts for its toxicological characteristics, including its high absorption from the gastrointestinal tract, its concentration within the erythrocytes, its passage through the blood-brain barrier and placental barrier, and its affinity for fetal hemoglobin. Two outbreaks of such poisoning due to ingestion of fish from mercury polluted waters occurred in Japan and in Alamogordo, Mexico. Experimentally, methyl-mercury has been shown to disturb cell division through inactivation of the mitotic spindle; to reduce litter size of mice (at levels as low as 0.5mg/kg body weight/day); to elicit embryotoxic and teratogenic effects in pregnant rodents (1-2mg/kg/day); to produce defects of neurological growth and behavior; and to cause an increase in chromosomal breaks. The swordfish were found to have a rather high level of methylmercury and have been removed from the commercial market. A detailed follow-up of survivors in the areas where mercury poisoning occurred is urged. (42 refs.) - *A. C. Schenker.*

Department of Medical Statistics
and Epidemiology
Mayo Graduate School of Medicine
Rochester, Minnesota

2933 **KHURI-BULOS, NAJWA.** Meningococcal meningitis following rifampin prophylaxis. *American Journal of Diseases of Children*, 126(5):689-691, 1973.

A secondary outbreak of meningococcal infection, in spite of the administration of rifampin to contacts of an infant with meningococcemia, is reported. The reacquisition of *Neisseria meningitidis* in the siblings after receiving rifampin prophylaxis may be explained by reinfection from the babysitter, or from the patient, who did not receive rifampin in the hospital. The occurrence of disease in the 4-year-old sister after the reacquisition of the organism poses the question whether the termination of the carrier state in this subject (whose culture was positive for a nontypable N meningitidis) by giving her rifampin may have prevented natural immunity from occurring. Information to families regarding the dangers of infection in contacts should supplement any attempt at chemoprophylaxis. (10 refs.) - *A. C. Schenker.*

University of Colorado Medical Center
Denver, Colorado 80220

2934 **SIMMONS, MICHAEL A.; BURRINGTON, JOHN D.; WAYNE, ELI R.; & HATHAWAY, WILLIAM E.** Splenic rupture in neonates with erythroblastosis fetalis. *American Journal of Diseases of Children*, 126(5):679-681, 1973.

The management of 2 hydropic infants with massive intraabdominal hemorrhage from splenic tears is described. In both infants the diagnosis was suspected promptly, and bleeding from the spleen was controlled by a conservative surgical approach not requiring splenectomy. A rapidly falling hematocrit reading, along with marked progression of abdominal distention and signs of cardiovascular collapse, prompted immediate search for a site of hemorrhage, which was found by paracentesis. Coagulation anomalies were corrected by replacement of specific clotting factors; hemorrhage was controlled by the operative cauterization of all bleeding points in the splenic capsule and the application of a single layer of oxidized cellulose to the denuded surface of the spleen. (20 refs.) - *A. C. Schenker.*

University of Colorado Medical Center
Denver, Colorado 80220

2935 **MONTGOMERY, JOHN R.; FLANDERS, RAYMOND W.; & YOW, MARTHA D.** Congenital anomalies and herpesvirus infection. *American Journal of Diseases of Children*, 126(3):364-366, 1973.

Heart defects and deformed digits associated with probable intrauterine infection with herpesvirus are described in a 14-month-old girl. The association of congenital heart disease, growth retardation, developmental delay, chorioretinitis, and recurrent vesicular lesions since birth with the isolation of herpesvirus suggests a causal relationship. This possiblity would attribute the anomalies to a teratogenic effect of the herpesvirus. This could not be proven, but the presence of lesions at birth and of several congenital anomalies suggested that the entire spectrum of findings might be related to *in utero* infection relatively early in gestation. Infection early in pregnancy may lead to spontaneous abortion, later infection to congenital anomalies, and late or postnatal infection to the usual or more severe manifestations of the disease. (18 refs.) - *A. C. Schenker.*

1200 Moursund Avenue
Houston, Texas 77025

2936 **BALFOUR, HENRY H.; & *LOCKMAN, LAWRENCE A.** Herpesvirus encephalitis following herpes keratitis. *American Journal of Diseases of Children*, 126(3):357-359, 1973.

A unique case is presented of a patient who experienced typical herpes encephalitis 15 months after the onset of herpetic keratitis that had been treated topically with idoxuridine (Herplex). The 17-month-old girl had biopsy-proved Herpesvirus hominis type 1 encephalitis. She also had a herpetic keratitis diagnosed by finding a dendritic ulcer on fluorescein staining and intranuclear inclusions typical of Herpesvirus hominis in corneal scrapings. The keratitis and encephalitis may not be etiologically related; both the eye lesion and the temporal lobe encephalitis were on the left side, however. Topical treatment with idoxuridine for the keratitis is to be noted, particularly since Norn has recently indicated that herpes keratitis recurrence was higher among patients thus treated. The patient improved following 3 courses of cytarabine therapy. (11 refs.) - *A. C. Schenker.*

*University of Minnesota
Minneapolis, Minnesota 55455

2937 **O'CONNEL, BRENT.** Pericarditis following meningococcic meningitis. *American Journal of Diseases of Children*, 126(2):265-267, 1973.

The youngest survivor of pericarditis following meningococcic meningitis, a 6-month-old boy, is described. The presenting findings were typical of other cases of meningococcic meningitis, except for mild dehydration. The diagnosis of pericarditis, in light of no change in the intensity of heart sounds and the absence of a friction rub, was not entertained until the cardiomegaly was apparent roentgenographically. Pericardiocentesis appeared to mark the turning point in the patient's course. This case serves to emphasize 3 points: although a rare finding, pericarditis does occur following an episode of meningococcic meningitis, even in patients treated with antibiotics; difficulty in diagnosis is encountered in very young children; and persistent or recurrent fever during treatment of this disease requires careful investigation and exclusion of other complicating problems. (18 refs.) - *A. C. Schenker.*

Harrisburg Polyclinic Hospital
Harrisburg, Pennsylvania 17105

2938 **HAWLEY, H. BRADFORD; & GUMP, DIETER W.** Vancomycin therapy of bacterial meningitis. *American Journal of Diseases of Children*, 126(2):261-264, 1973.

Two cases of bacterial meningitis, treated only with i.v. vancomycin, are discussed, and the literature concerned with the clinical usefulness of vancomycin treatment in such cases is reviewed. It appears that vancomycin enters the CSF adequately in the presence of severe meningeal inflammation such as occurs with bacterial meningitis. In one case of *Flavobacterium meningosepticum*, vancomycin was given at a dose of 40mg i.v. every 8 hours; and in a second case, one of *Staphylococcus aureus* meningitis, the patient was given 40mg/kg/day. In the first case, sterilization of the CSF was achieved after 3 days of vancomycin, and in the second case, the CSF was sterile on the seventh day. In case 2, prolonged therapy with methicillin followed by chloramphenicol failed to sterilize the CSF. Vancomycin is a life-saving drug in certain cases of meningitis. (10 refs.) - *A. C. Schenker.*

College of Medicine
University of Vermont
Burlington, Vermont 05401

2939 **MELISH, MARIAN E.; & *HANSHAW, JAMES B.** Congenital cytomegalovirus infection: developmental progress of infants detected by routine screening. *American Journal of Diseases of Children*, 126(2):190-194, 1973.

A virological survey was instrumental in detecting 22 infants, through 2 routine screening methods, to be infected with cytomegalovirus (CMV) at birth. Of 1,963 urine cultures, 20 (1%) were positive for CMV. Mothers of the viruric infants were significantly younger (18 years or younger) than the staff obstetrical service mothers as a whole; 70% of the mothers of the viruric infants were primigravidas. Of the 20 children in the viruric group, one had a neurological handicap (deafness), and one was hyperactive and emotionally labile. When cord serum samples were examined for elevated total IgM and then for CMV-IgM, 2 of 3 infants who had positive reactions were found to be infected and both had severe neurological damage. This screening method detected only 5 with elevated IgM of 19 infants in the viruric group, and only 9 viruric infants had detectable CMV-IgM. In the 22 infected infants detected by both methods, all had persistent viruria, and only one had symptoms suggestive of CMV infection at birth. Despite continued viruria CMV-complement fixation antibody was $\leq$1:1:8 at last follow-up in 16 children and fell to undetectable levels in 10 who had previously had elevated levels. (20 refs.) - *A. C. Schenker.*

*Genesee Hospital
Rochester, New York 14607

2940 **LINNEMANN, CALVIN C.; MAY, DON B.; SCHUBERT, WILLIAM K.; CARAWAY, CHARLES T.; & SCHIFF, GILBERT M.** Fatal viral encephalitis in children with X-linked hypogammaglobulinemia. *American Journal of Diseases of Children*, 126(1):100-103, 1973.

Two children with infantile X-linked hypogammaglobulinemia (IXH) who died with viral encephalitis are described. This report extends the limited number of reported cases of severe viral infections in children with IXH to include echovirus meningoencephalitis and herpes simplex encephalitis. Herpes simplex virus was present in the brains of both patients; herpesvirus was present in association with echovirus infection in one

and caused a fatal encephalitis in the second following vaccination with attenuated measles virus. Cellular immunity and nonimmune host defenses, such as interferon production, should be carefully evaluated during the rare viral infections that occur in patients with antibody deficiency syndromes. (19 refs.) - *A. C. Schenker.*

Christ Hospital Institute of
Medical Research
Cincinnati, Ohio 45219

2941 SARUBBI, FELIX A.; SPARLING, P. FREDERICK; & GLEZEN, W. PAUL. Herpesvirus hominis encephalitis: virus isolation from brain biopsy in seven patients and results of therapy. *Archives of Neurology*, 29(4):268-273, 1973.

A description of 7 patients from whom brain biopsy yielded Herpesvirus hominis (H hominis) is presented; 4 were treated with idoxuridine and 2 were treated with cytarabine. The spinal fluid findings in these patients varied, the protein level ranging from nearly normal to markedly elevated. Variations were also found in the pleocytosis, RBC counts, and spinal fluid glucose. Serologic testing for H hominis antibodies revealed a diagnostic rise in only 3 patients; the EEG tracings were not interpreted as specific for this disease. The efficacy of chemotherapy or surgery in the treatment of H hominis encephalitis is difficult to assess in view of the lack of controlled clinical trials. There was only one survivor who was left with marked neurological deficits. (48 refs.) - *A. C. Schenker.*

University of North Carolina
School of Medicine
Chapel Hill, North Carolina 27514

2942 CHO, CHENG T.; HIATT, WILKS O.; & BEHBEHANI, ABBAS M. Pneumonia and massive pleural effusion associated with adenovirus type 7. *American Journal of Diseases of Children*, 126(1):92-94, 1973.

An adenovirus type 7 infection is described in an 18-month-old child who had pneumonia, extensive pleural effusion, and meningoencephalitis followed by residual bronchiectasis and seizures associated with the febrile episode. Because the patient was reported to have had recurrent "fever blister," it is suggested that herpesvirus hominis, isolated during his acute episode, was probably due to reactivation of a latent herpes infection. However, without the results from brain biopsy, herpesvirus encephalitis cannot be ruled out. Although adenoviruses are not the major cause of respiratory infections in children, the sequelae of adenoviral pneumonia suggest the need for the development of prophylactic measures against these infections. (12 refs.) - *A. C. Schenker.*

University of Kansas Medical
Center
Kansas City, Kansas 66103

2943 Switch in viral ,genes leads to new flu vaccine. *Journal of the American Medical Association*, 221(11):1217-1218, 1972.

Clinical trials at the National Institute of Allergy and Infectious Diseases of a new flu vaccine using a temperature-sensitive recombitant gene virus have been termed successful in matching the influenza virus' structural alteration. It should be possible to manufacture similar transfers of appropriate viral genes when new major antigenic variant strains of influenza appear. - *C. Wares.*

2944 WALES, J. K.; & HAMBLING, M. H. Coxsackie B virus and diabetes. *British Medical Journal*, 1(5858):120, 1973. (Letter)

The possible role of Coxsackie B viral infections as an etiological agent in diabetes mellitus has been investigated in serum neutralization tests. Preliminary findings indicate no statistical relationship of diabetes mellitus in patients diagnosed as having had Coxsackie B2 or B4 viral infections. - *C. Wares.*

University Department of Medicine
Leeds General Infirmary
Leeds, England

2945 WYATT, R.; & WILSON, A. MURRAY. Children of anaesthetists. *British Medical Journal*, 1(5854):675, 1973. (Letter)

A pilot study to examine the incidence of female children born to male anesthetists in the Sheffield Hospital Region has determined that there is indeed a significantly greater number of female

children born to Sheffield-area anesthetists than to fathers in the general Sheffield region or to fathers in England and Wales inclusive. The percentage of female children born to anesthetists in the study was found to be 56.8 per cent, while the percentage born to the other two groups was only 48.6 per cent each. The results of the study point up the advisability of reducing to a minimum the exposure of anesthetists to inhalational agents, supposing that the high incidence of female births suggests that other abnormal effects may be possible. (5 refs.) - *C. Wares.*

United Sheffield Hospitals
Sheffield, England

2946 **BARR, RONALD D.** Rh immunization in ruptured tubal pregnancy. *British Medical Journal*, 1(5854):674-675, 1973. (Letter)

Rh immunization in ruptured tubal pregnancy has been considered as a possibility, owing to the measurement of maternal and fetal cell scores. Whereas it is difficult to ascertain whether the cells being counted are of maternal or fetal origin, the cell scores for red blood cell count and the detection of rhesus antibodies is at best a guessing game without positive identification of what is being counted. It is supposed that embryos in ectopic pregnancies have incompletely expressed rhesus antigenic determinants, and may only be theorized to fail to agglutinate with anti-e antibody in the absence of further, more specific tests. (5 refs.) - *C. Wares.*

University of Aberdeen
Aberdeen, Scotland

2947 Alpha[1] antitrypsin deficiency and liver disease in childhood. *British Medical Journal*, 1(5856):758, 1973.

Alpha[1] antitrypsin deficiency is known to be associated with pulmonary and hepatic disease, but the physiological role of the glycoprotein synthesized in the liver is unknown. In infancy the deficiency is most often associated with neonatal hepatitis, which is usually followed by cirrhosis. Why the deficiency is a predisposition to liver disease has not been explained, but the glycoprotein may have a protective role in serum and tissues in inhibiting proteolytic enzymes. (16 refs.) - *C. Wares.*

2948 **BEHAN, PETER O.; KIES, MARIAN W.; LISAK, ROBERT P.; SHEREMATA, WILLIAM; & LAMARCHE, JACQUES B.** Immunologic mechanisms in experimental encephalomyelitis in nonhuman primates. *Archives of Neurology*, 29(1):4-9, 1973.

Experimental allergic encephalomyelitis (EAE), both ordinary and acute, was induced in rhesus monkeys with homologous and heterologous meylin basic proteins, and the detection of specific antibodies and delayed hypersensitivity to these antigens were studied. The results revealed that induction of EAE was invariably accompanied by evidence of cell-mediated hypersensitivity to specific antigen. The evidence includes: delayed skin reactivity to myelin basic proteins, *in vitro* induction of lymphoblastic transformation, and production of macrophage inhibiting factor. The fact that circulating antibodies were demonstrated only in the hyperacute form of EAE suggests that they play only an accessory role. The distribution of lesions in ordinary EAE in primates closely resembles their distribution in acute disseminated encephalomyelitis in humans, and the hyperacute EAE resembles the acute hemorrhagic leukoencephalitis in humans, in terms of distribution of lesions. These similarities suggest a common pathogenetic mechanism. (31 refs.) - *A. C. Schenker.*

Veterans Administration Hospital
Boston, Massachusetts 02130

2949 **EVANS, D.I.K.; & HOLZEL, A.** Wilm's-aniridia syndrome with transient hypogamma-globulinaemia of infancy. *Archives of Disease in Childhood*, 48(8):645-646, 1973.

A case of Wilm's syndrome is described, where development of the tumor was preceded by development and recovery from transient hypogammaglobulinemia of infancy. The clinical picture of eczema, allergy, and tendency to recurrent infection, associated with low IgG, low normal IgA, and normal IgM in the early months of life, with spontaneous improvement, is characteristic of the immune response, transient hypogammaglobulinemia of infancy. There does not seem to be any record of children with this syndrome who have developed malignant disease. This child, at the age of 32 months, developed hematuria, and i.v. pyelography showed a large tumor in the upper pole of the right kidney which proved to be a

nephroblastoma and which was removed surgically. At the age of 4½ years, the child is still alive but is MR. It is suggested that serum immunoglobulins be monitored in the early months of life in future cases of congenital aniridia. (8 refs.) - *A. C. Schenker.*

Booth Hall Children's Hospital
Manchester M9 2AA, England

2950 CHANDRA, R. K. Hepatitis antigen and alpha-fetoprotein in neonatal hepatitis. *Archives of Disease in Childhood*, 48(2):157-158, 1973.

Because of a positive correlation between detection of hepatitis-associated antigen (HAA) and alpha-fetoprotein (AFP), and the postulate that viral hepatitis may predate the development of carcinoma/cirrhosis, the presence of AFP and HAA was sought in 24 patients with neonatal hepatitis. HAA was found in samples from 3 (12.5%) patients; 2 (8%) mothers showed hepatitis antigen in their sera and both had HAA-positive infants with hepatitis. AFP was positive in 6 (25%) patients. All 24 healthy infants and their mothers (controls) were negative for HAA and AFP. The tests were performed at intervals up to 12 weeks. The presence of AFP beyond the immediate neonatal period is believed to be the result of disrupted repressor mechanisms; a long-term follow-up of infants with positive HAA and AFP is recommended. (14 refs.) - *A. C. Schenker.*

All India Institute of Medical
Sciences
New Delhi 16, India

2951 WAYNE, ELI R.; BURRINGTON, JOHN D.; MYERS, DAVID N.; COTTON, ERNEST; BLOCK, WILLIAM. Bilateral eventration of the diaphragm in a neonate with congenital cytomegalic inclusion disease. *Journal of Pediatrics*, 83(1):164-165, 1973.

Bilateral congenital diaphragmatic eventration and severe respiratory insufficiency, associated with a generalized cytomegalovirus infection, is described in a neonate. Despite vigorous measures and antibiotic therapy, the bilateral pneumonitis gradually worsened and the patient died on the twelfth day of life. Cytomegalovirus was cultured from both urine and cerebrospinal fluid of the infant, and subsequent urine cultures and antibody studies in the mother were positive for cytomegalovirus. Whether the virus can be implicated in the production of the bilateral congenital eventration of the diaphragm has not been proved. (5 refs.) - *A. C. Schenker.*

University of Colorado Medical
Center
Denver, Colorado 80218

2952 KARCHMER, ADOLF W.; & HIRSCH, MARTIN S. Cytosine arabinoside versus virus or man? *New England Journal of Medicine*, 289(17):912-913, 1973.

The possibilities and limitations in the development of antiviral agents are discussed, with special reference to cytosine arabinoside. It is pointed out that viruses are dependent on the host's cellular machinery for self-replication, and that the outcome of virus infections is a result of both direct viral cytopathic effects and a number of antiviral host responses. Thus, the achievement of an antiviral effect may simultaneously impair the host's defense against viral infection. Referring to an article in this issue on therapy of a viral disease with a nucleoside derivative, Ara-C, for the treatment of disseminated zoster, it is pointed out that prolonged virus dissemination was noted in several treated patients. A more fruitful approach to antiviral therapy might be to develop drugs that have specific action for virus replication. The development of agents that specifically inhibit such enzymes as the DNA-dependent RNA-polymerase of pox viruses or the RNA-dependent DNA polymerase of oncornaviruses may prevent virus application while allowing cells to function normally. (8 refs.) - *A. C. Schenker.*

Massachusetts General Hospital
Boston, Massachusetts 02114

2953 NITZAN, MENACHEM. Hypoglycemia in small-for-gestational age infants. *Journal of Pediatrics*, 83(3):505, 1973. (Letter)

In vitro findings in an experimental model of intrauterine growth retardation are described in connection with hypoglycemia in small-for-gestational-age infants. Liver slices taken from small-for-date newborn rats 3 hours after spontaneous delivery showed an impaired glucose pro-

duction from labeled alanine. On the basis of this observation, it was postulated that inadequate postnatal development of hepatic gluconeogenesis may play a contributory role in the susceptibility of small-for-date infants to developing hypoglycemia during the early period following delivery. The rapid fall in liver glycogen after birth suggests that it is mobilized to maintain the blood glucose level. When these reserves are exhausted, glucose production from noncarbohydrate substrates plays an important role. Inappropriate secretion of glucagon and catecholamines, or impaired enzyme induction, may cause delay in maturation of hepatic gluconeogenesis. (5 refs.) - *A. C. Schenker.*

Tel Aviv University Medical School
Petah Tikva, Israel

2954 BLUM, D.; & ETIENNE, J. Agar in control of hyperbilirubinemia. *Journal of Pediatrics*, 83(2):345, 1973. (Letter)

Control of neonatal hyperbilirubinemia is reported in a study of 22 infants to supplement the report by Maurer and associates. The Ss were divided into 2 groups, group 1 receiving 250mg of agar powder before each feeding beginning at 10 hours of age and continuing at 4-hr intervals for 5 days; group 2 receiving no therapy. Daily serum bilirubin concentrations were not significantly different in the 2 groups. It is concluded that agar failed to reduce the degree of hyperbilirubinemia significantly and that this method of therapy is ineffective in the management of "physiologic" jaundice in the newborn infant. (3 refs.) - *A. C. Schenker.*

Hopital Brugmann
Universite Libre de Bruxelles
Brussels, Belgium

2955 CHERRY, J. D.; FEIGIN, R. D.; LOBES, L. A., JR.; & SHACKELFORD, P. G. Atypical measles in children previously immunized with attenuated measles virus vaccines. *Journal of Pediatrics*, 83(1):156, 1973. (Abstract)

In a study of 12 children with atypical measles syndrome, it was discovered that 6 had received only live attenuated measles virus vaccines. The symptomatology was more severe in the children who had received killed vaccine. Four of the 6 recipients of live vaccine had ⩾4-fold measles hemagglutination inhibiting (HAI) antibody titer rises. The geometric mean (GM) HAI antibody titer of the acute sera in the recipients of live vaccine was greater than that of the recipients of killed vaccine (GM 71 versus 16), whereas the converse was true of the convalescent serum titers (GM 325 versus 845). None of the serum specimens from any of the vaccine recipients revealed ⩾4-fold reduction in titer with 2-mercaptoethanol treatment, suggesting immunologic recall rather than primary antibody response. It is possible that with increasing periods of time between immunization with attenuated vaccines to natural measles exposure, more atypical reactions will occur, which is a serious consideration. - *A. C. Schenker.*

2956 BAUBLIS, JOSEPH V.; BUCHANAN, ROBERT; & HOLLAND, ROXIE. Diminished cytomegalovirus (CMV) excretion in congenitally infected infants treated with adenine arabinoside (Ara-A). *Journal of Pediatrics*, 83(1):156, 1973. (Abstract)

The effect of adenine arabinoside (Ara-A) on 7 infants infected with cytomegalovirus (CMV) was studied. The amount of virus in the urine diminished as much as 2 logs in response to the drug, and in one case became undetectable. The duration of this apparent antiviral effect was transient. Clinical improvement was seen in all but one infant during the course of therapy. No significant toxicity was observed at doses up to 20mg/kg/24 hr, administered over 21 days. - *A. C. Schenker.*

University of Michigan
Ann Arbor, Michigan

2957 KERR, D.N.S. Specific immunoglobulin for prevention of serum hepatitis. *Lancet*, 2(7829):627, 1973. (Letter)

It is announced that a series of controlled clinical trials will be conducted with immunoglobulin containing a high titer of antibodies to hepatitis B-associated antigen (HG-Ag), prepared at the Lister Institute. There is one situation in which the uncontrolled use of this material is justified: for treatment of patients, staff, and other persons who are accidentally inoculated with infective material such as blood, blood products, and laboratory reagents which are known to contain the antigen.

The recipient and physician administering it will be asked to participate in a follow-up study which is being conducted by the Medical Research Council to establish its effects. (3 refs.) - *A. C. Schenker.*

Royal Victoria Infirmary
Newcastle upon Tyne
NEI 4LP, England

2958 GIMLETTE, T.M.D.; & HOSCHL, R. Treatment of thyrotoxicosis. *Lancet*, 2(7829):619, 1973. (Letter)

Disappointing results with ^{125}I-therapy in thyrotoxicosis, reported by others, are corroborated. A comparison of treatment with ^{125}I and ^{131}I poses a problem in dosimetry. The physical half-life of ^{125}I is relatively long, but its effective half-life is much more dependent on its biological half-life in the thyroid than is ^{131}I. The studies indicate that with both radioisotopes the biological half-life is variable and not readily predictable from pre-therapy tracer tests. (1 ref.) - *A. C. Schenker.*

Liverpool Clinic
1 Myrtle Street
Liverpool L7 7DE, England

2959 SMITH, HILLAS; BANNISTER, BARBARA; & O'SHEA, M.J. Cerebrospinal-fluid immunoglobulins in meningitis. *Lancet*, 2(7829):591-593, 1973.

Immunoglobulin concentration in the cerebrospinal fluid (C.S.F.) of patients with meningitis was determined for possible diagnostic value. Samples from 88 patients were estimated for IgG, IgA, and IgM. In normal Ss, IgM was not detected in any of the 20 samples of C.S.F.; concentrations of IgA gave a mean of 0.43mg/100ml, and none was detected in 13 of the samples. The mean value for IgG was 3.1mg/100ml, and none was detected in 2 samples. In patients with meningism, without nervous system abnormality, C.S.F. concentrations were very low, and IgM was not detected. The major finding in acute bacterial and in tuberculous meningitis is a rise in C.S.F. IgM concentration: 4.3mg/100ml was the mean for 24 cases of purulent meningitis, and 0.5mg/100ml the mean for 35 cases of acute viral meningitis. The studies support the concept of a grossly inflamed meningeal membrane leaking increased quantities of protein, but the late rise seen in IgG and IgM values in convalescence from viral meningitis suggests that some immunoglobulins may be produced by or adjacent to infected meninges. (4 refs.) - *A. C. Schenker.*

Royal Free Hospital
Lawn Road
London NW3, England

2960 HAMBLIN, T. J. Differentiation of iron deficiency from thalassaemia trait. *Lancet*, 2(7826):455-456, 1973. (Letter)

In response to Dr. England and his colleagues, certain features of the article referred to are clarified. The polycythemic patient described, with discriminant (D.F.) in the β-thalassemia range, had not been venesected, but had presented with iron deficiency. The D.F. in venesected patients was estimated merely to demonstrate that in patients with definite polycythemia rubra vera and undisputed iron deficiency, this value is consistently negative. No doubt in uncomplicated cases the formula does differentiate between iron deficiency and β-thalassemia trait. (2 refs.) - *A. C. Schenker.*

General Hospital
Poole, Dorset, England

2961 ARROWSMITH, W. A. The nitroblue tetrazolium (NBG) test and meningitis. *Developmental Medicine and Child Neurology*, 15(4):519-521, 1973.

The nitroblue tetrazolium (NBT) test in the differentiation between bacterial and nonbacterial meningitis is discussed. This soluble dye is pale yellow in color and can be incorporated and reduced by less than 10% of normal neutrophils to dark blue or black insoluble formazan. During many bacterial infections, the proportion of NBT-positive cells rises to over 11%. Some nonbacterial pathogens can influence the NBT test, and normal results may be found despite bacterial infection in some diseases. The great variability reported by different workers may be the result of the interpretation of microscopic appearances. Most workers have found it to be a useful adjunct to established methods of investigation; its reliablity compares with that of conventional bacteriological and virological methods, but it has

the advantage that the result is available within one hour. The test promises to be a useful addition to present laboratory aids in the investigation and management of meningitis. (19 refs.) - *A. C. Schenker.*

Seacroft Hospital
York Road
Leeds LS14 6UH, England

2962 Cholestatic jaundice of pregnancy. *Medical Journal of Australia*, 1(4):151-152, 1973. (Editorial)

Cholestatic jaundice in pregnancy, a syndrome which usually occurs in the third trimester, is discussed. Although the disease is usually benign in the mother, there appears to be a significant fetal mortality associated with it. The diagnosis is usually easy to make, particularly if the patient has had pruritus during previous pregnancies or during administration of oral contraceptives. A report in this issue states that a history of jaundice in a previous pregnancy is not essential for this to occur; it also emphasizes the high fetal mortality (13%). The pathogenesis of cholestasis of pregnancy is unknown and therapy is symptomatic and directed at the control of pruritus. Cholestyramine relieves the itch, but it is not known if it can effect a reduction in infant mortality. (11 refs.) - *A. C. Schenker.*

2963 **RENCORET, R.; & ASTE, H.** Jaundice during pregnancy. *Medical Journal of Australia*, 1(4):167-169, 1973.

The clinical aspects of jaundice in pregnancy and its effects on the infant's wellbeing are described in 32 cases. These cases represented an incidence of 0.43% (7,312 deliveries). There was a history of infectious hepatitis in 2 cases and of cholelithiasis in 5 cases; 5 patients had had their gall-bladder removed, 4 before pregnancy and one after delivery. A previous history of jaundice was reported in 9 cases. The diagnosis of intrahepatic cholestasis was made in 31 cases, and the remaining patient had gallstones. This series had a high perinatal mortality (13%), over two-thirds of which were intrauterine; no obvious fetal abnormalities were found. Four neonatal deaths were due to respiratory distress syndrome and hyaline membrane disease. It is suggested that oral contraceptives be avoided in patients with a previous history of cholestatic jaundice of pregnancy. (14 refs.) - *A. C. Schenker.*

Casilla No. 405
Valparaiso, Chile
South America

2964 **SITPRIJA, V.; & CHUSLIP, S.** Renal failure and hyperbilirubinaemia in leptospirosis treatment with exchange transfusion. *Medical Journal of Australia*, 1(4):171-173, 1973.

Severe renal failure with anuria is reported in a 40-year-old male patient with leptospirosis who had hyperbilirubinemia and was treated successfully by exchange transfusion. Severe jaundice of this degree had not previously been observed with leptospirosis; the total bilirubin level was 40mg/100ml and the direct bilirubin 28mg/100ml, and serum glutamic oxaloacetic transaminase (SGOT) was 170 units. With exchange transfusion, the reduction of the serum bilirubin level was dramatic, and this was associated with clinical improvement and followed by an increase in urinary output. (13 refs.) - *A. C. Schenker.*

Chulalongkorn Hospital Medical School
Bangkok, Thailand

2965 **MAY, J. ROBERT; & DAVIES, JUDITH.** Resistance of Haemophilus influenzae to trimethoprim. *British Medical Journal*, 3(5823):376-377, 1972.

The occurrence of trimethoprim-resistant *Haemophilus (H.) influenzae* is reported, in connection with a survey of routine sensitivity tests of 210 isolates of *H. influenzae* from the saliva of 63 patients with respiratory infections. Of these, 109 were found to be resistant to the trimethoprim sulphamethoxazole disc, which is suggestive of inadequate clearance of inhibitors from the medium; however, observation of the same phenomenon in the minimal inhibitory concentration (M.I.C.) estimations eliminates the possibility of technical error. It is therefore concluded that the risk of emergence of trimethoprim-resistant *H. influenzae* in patients undergoing long-term treatment is very high. Out of 39 patients treated

with trimethoprim-sulphamethoxazole, resistant *H. influenzae* was isolated from 32, whereas only 1 resistant strain was found among the strains isolated from each of 8 patients who had not been treated with this drug combination. There is clearly a case for the use of dose ratios of trimethoprim and sulphonamide more closely related to the needs of the site of infection being treated, and the avoidance of the acceptability of a single mixture to be used for all infections. (5 refs.) - *A. C. Schenker.*

Institute of Diseases of the Chest
Brompton Hospital
London S.W.3, England

2966 POWELL, HENRY CALEB; *ROSENBERG, ROGER N.; MCKELLAR, BARBARA. Reye's syndrome: isolation of parainfluenza virus: report of three cases. *Archives of Neurology*, 29(3):135-139, 1973.

A report of Reye's syndrome (fatty degeneration of the viscera) in association with parainfluenza virus types 2 or 3 is presented in connection with 3 cases. A 14-year-old girl (case 1), a 9-year-old girl (case 2), and a 5-year-old girl (case 3) are described. In case 1, hemadsorption was positive, and subsequently a parainfluenza virus type 3 was identified by hemadsorption inhibition. In case 2, material obtained by pharyngeal swab was positive, and virus type 2 was identified. In case 3, no virus was isolated from the patient, but the complement fixing and hemagglutination inhibiting antibody titers for parainfluenza type 3 were elevated. Patient 1 survived her illness after temporal craniectomy for cerebral edema and an exchange transfusion and, after multiple exchange transfusions, patient 3 also survived her illness. The present report cites for the first time the isolation of parainfluenza virus in association with Reye's syndrome; the 3 patients manifested upper respiratory tract infections presumably due to parainfluenza virus, and it is suggested that the subsequent development of Reye's syndrome was a directly related sequela. (53 refs.) - *A. C. Schenker.*

*School of Medicine
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San Diego, LaJolla, California 92037

2967 BERTHOLD, HANS; KLEINE, NORBERT; & MULLER, GERHARD. Australia antigen and serum hepatitis. *American Journal of Diseases of Children*, 123(4):386-387, 1972.

Following transfusion with blood units positive for Australia antigen, 4 icteric and 2 anicteric hepatides were observed among the 55 blood recipients. Au antigenemia occurred in 35 cases. Neither the frequency of posttransfusion hepatitis nor the frequency of Au antigenemia appear to be related to the Au antigen titer of the transfused blood. - *N. Mize.*

University of Freiburg
78 Freiburg, Germany

2968 TERRIER, ELISABETH; & JAULMES, BERNARD. Australia antigen and extracorporeal circulation in 819 cases. *American Journal of Diseases of Children*, 123(4):387-388, 1972.

An investigation into the incidence of hepatitis following massive blood transfusions associated with extracorporeal circulation (ECC) included postoperative screening for Au-antigen and antibody in 819 cases. Preoperative screening was possible for only 680 of these patients. Results of immunodiffusion and complement fixation tests carried out at varying intervals postoperatively showed 6 antigens and 8 antibodies not found preoperatively. Transfusion of Au-antigen positive blood was suspect in 4 cases and infection by plasma or fibrinogen in 3. The finding that one-half of the 14 patients showing posttransfusion antibodies had received only antigen-negative blood suggests the involvement of other modes of infection, however. From these findings it is obvious that fresh blood used in ECC procedures requires the most sensitive screening techniques and that improvements in donor selection will not eliminate all risk of post-ECC jaundice. - *N. Mize.*

Centre de Transfusion
de l'Hopital Broussais
75-Paris, 14 France

2969 **JAMESON, B.; & WELLS, D. G.** Cytologic diagnosis of cryptococcal meningitis. *New England Journal of Medicine*, 286(23):1267, 1972. (Letter)

Two instances in which previously undetected cryptococcal meningitis in patients with Hodgkins disease was demonstrated by the use of cytocentrifuge smears stained with Giemsa and PAS methods highlight the particular value of this technique in the investigation of meningitis of obscure etiology. Three years' experience with this method has shown the concentration of cells in cerebrospinal fluid preparations made on the centrifuge to be greatly superior to that commonly achieved by manual preparations. (3 refs.) - *N. Mize.*

Royal Marsden Hospital
London, England

2970 **WHITAKER, JOHN N.; & ENGEL, W. KING.** Immune complexes in subacute sclerosing panencephalitis. *New England Journal of Medicine*, 286(17):949-950, 1972. (Letter)

While the possibility of circulating immune complexes in subacute sclerosing panencephalitis most certainly exists, the limited availability of skeletal-muscle vascular deposits of IgM (found in only 3 of 9 SSPE cases studied) makes the chance for successful elution, as suggested by Dr. Phillips, very small. Additionally, in no case were the deposits present in more than 2 vessels per section, and in none of the 9 cases was there vascular or muscle inflammation. A better approach would be to attempt identification of the measles antigen in skeletal muscle tissue. (3 refs.) - *N. Mize.*

National Institute of
Neurological Diseases and
Stroke
Bethesda, Maryland

2971 **PHILLIPS, PAUL E.** Immune complexes in subacute sclerosing panencephalitis. *New England Journal of Medicine*, 286(17):949, 1972. (Letter)

It is possible that the IgM deposits found by Drs. Whitaker and Engel in the muscle blood-vessel walls of 2 patients with subacute sclerosing panencephalitis could reflect the presence of circulating measles antigen, rather than the deposition of immune complexes they suggest. This could be investigated by eluting the antibody from such sections and examining it for measles antigen. Such an important finding would show that the chronic measles infection of SSPE is not simply confined to the brain. (7 refs) - *N. Mize.*

Hospital for Special Surgery
New York, New York

2972 **PALMGREN, BERTIL; WAHLEN, TORE; & *WALLANDER, BO.** Toxaemia and cigarette smoking during pregnancy. *Acta Obstetricia et Gynecologica Scandinavica*, 52(2):183-185, 1973.

Results of a 3-year investigation involving 2,048 pregnant women who smoked cigarettes and 2,264 nonsmokers support findings of previous studies in demonstrating a significantly greater incidence of toxemia among the nonsmokers. Toxemia of pregnancy was found to occur in one out of every 10 pregnant nonsmokers, as compared with one out of every 20 smokers. Speculative explanations of these findings consider a possible protective mechanism initiated by some form of interaction between smoke components and the enzymatic processes of metabolism; a possible abortifacient effect of smoking, resulting in a reduced number of toxemia candidates; and a possible association with the larger consumption of diuretics typical of the nonsmoking group. Additionally, a higher perinatal mortality among low-birthweight infants of nonsmokers suggests a close association with the greater frequency of toxemia. (8 refs.) - *N. Mize.*

*252 20 Helsingborg
Sweden

2973 **THONG, Y. H.; STEELE, RUSSELL W.; VINCENT, MONROE M.; HENSEN, SALLY A.; & *BELLANTI, JOSEPH A.** Impaired in vitro cell-mediated immunity to rubella virus during pregnancy. *New England Journal of Medicine*, 289(12):604-606, 1973.

Cell-mediated immunity in 11 pregnant women was measured by phytohemagglutinin and mixed-lymphocyte culture responses; results were com-

pared with assessment of specific cell-mediated immunity to rubella virus by a ^{51}Cr-release microassay. The mean specific immune release for 13 seropositive Ss during pregnancy was 4.3%, as compared to a mean of 19.9% in 14 seropositive nonpregnant women. The experiments were all performed without the addition of plasma, and the findings were interpreted to suggest an intrinsic dysfunction of T-lymphocytes during pregnancy. Impaired cell-mediated immunity in pregnancy is consistent with the purported increased severity of certain viral infections during the gravid state. The transient depression of specific cell-mediated immunity to rubella virus during pregnancy, demonstrated in the present study, increases the need for further definition of the role of cell-mediated immunity not only in rubella but also in other viral infections. (43 refs.) - *A. C. Schenker.*

*Georgetown University School of Medicine
Washington, District of Columbia 20007

2974 GREENE, NICHOLAS M. Halothane anesthesia and hepatitis in a high-risk population. *New England Journal of Medicine*, 289(6):304-307, 1973.

A review of the risk of producing hepatitis when a halogenated anesthetic, halothane, is administered to patients on chronic maintenance doses of drugs capable of producing enzyme induction is presented. MR patients of Southbury Training School received halothane in nitrous oxide and oxygen in a program of dental anesthesia. Two attacks of hepatitis were observed after halothane at a rate of one in 457 anesthetic procedures; 5 cases of hepatitis developed after 206 anesthetics without halothane, a rate of one in 41 procedures. Neither overt nor covert hepatitis occurred that could be ascribed to halothane anesthesia. A total of 393 halothane anesthetics were administered at a time when enzyme induction could have occurred, including 294 halothane anesthetics administered to patients on phenobarbital. The data suggest that in man, under clinical conditions, the metabolism of halothane by hepatic microsomal enzymes is not a clinically important component of the halothane-induced hepatic damage generally referred to as halothane hepatitis. (20 refs.) - *A. C. Schenker.*

Yale University School of Medicine
New Haven, Connecticut 06510

2975 SELHORST, JOHN B.; VICTOR, DAVID I.; & SAWYER, RALPH A. Herpetic manifestations. *New England Journal of Medicine*, 289(3):158, 1973. (Letter)

Herpetic eruption following a lateral medullary infarct is described in connection with other reports of this nature. The patient presented with rotatory nystagmus, hoarseness, gait instability, ipsilateral facial anesthesia, limb ataxia, and gaze preference, with contralateral limb loss of pain and temperature (Wallenberg syndrome). Nine days afterward, an extensive herpetic eruption developed about the lips in the zone of facial anesthesia, with several vesicles about the opposite corners of the mouth. Perhaps attention to the various modes of second order trigeminal lesions which led to herpetic eruptions will stimulate further research on neural influences on viral activation. (3 refs.) - *A. C. Schenker.*

Naval Hospital
Bethesda, Maryland

2976 KIRBY, WILLIAM M. M. Herpetic manifestations. *New England Journal of Medicine*, 289(3):158-159, 1973. (Letter)

The article by Baringer and Swoveland, demonstrating herpes-simplex virus in the trigeminal ganglions of 6 of 7 patients at autopsy, prompted a report on the following observation. An exquisite hypersensitivity of the skin innervated by one or more branches of the trigeminal nerve was noted for about 2 days before the vesicles appeared on the lips; the tenderness subsided in 3 or 4 days as the process ran the usual course of herpes labialis. Recently, hypersensitivity of the skin, innervated by cervical or lumbar nerves, has occasionally occurred without the appearance of vesicles, suggesting that the virus can also reside in the dorsal-root ganglions. The frequent use of a sun lamp has seemed to reduce the number of attacks. - *A. C. Schenker.*

University of Washington
Seattle, Washington

2977 KAZAZIAN, HAIG H., JR.; & WOODHEAD, ANDREA P. Hemoglobin A synthesis in the developing fetus. *New England Journal of Medicine*, 289(2):58-62, 1973.

Hemoglobin synthesis was measured in the peripheral blood cells of fetuses obtained immediately

after delivery by elective hysterectomy or hysterotomy; the normal level of hemoglobin A ($\alpha_2\beta_2$) synthesis for any fetus of known gestational age is an important prerequisite for the antenatal detection of β-thalassemias. The synthesis of hemoglobin A was measured in 42 fetuses of 3.5cm-20.0cm, in crown-to-rump length. A synthesis of 4% of total hemoglobin synthesis would be normal in a fetus of 8-10 weeks, but such value would indicate deficient hemoglobin A or presumed β-thalassemia in an 18-week fetus. The observation that the synthesis of hemoglobin A accounts for 7% of hemoglobin synthesis in an embryo of 33mm in crown-to-rump length of 55 gestational days is of interest, since this cannot be determined by electrophoresis until the fetus is 80mm or 80 gestational days old. Erythroid cells of hepatic origin (present in late fetal life) can synthesize α' β' γ, Δ and ξ globulin chains. (18 refs.) - *A. C. Schenker.*

Johns Hopkins Hospital (Pediatrics)
Baltimore, Maryland 21205

2978 GONYEA, EDWARD F. Site vs. quantity of cerebrospinal fluid in detecting cryptococcal meningitis. *New England Journal of Medicine*, 289(5):272, 1973. (Letter)

In the work cited by Dr. Utz, a 3-ml sample of cerebrospinal fluid was sufficient to give a positive India-ink preparation and culture, whereas 30ml of cisternal CSF was withdrawn. The multiple-site approach to diagnosis in difficult cases can give earlier diagnosis by providing a positive India-ink preparation from cisternal or ventricular CSF when the lumbar fluid is negative. Moreover, withdrawal of large quantities of lumbar CSF is unlikely to gain wide acceptance in cryptococcal meningitis, which commonly presents with increased intracranial pressure and sometimes with a mass effect as well. (2 refs.) - *A. C. Schenker.*

Veterans Administration Hospital
Gainesville, Florida

2979 HAUKENES, G.; HARAM, K.; & SOLBERG, C.-O. Clinical rubella after reinfection: false-positive reaction or specific HI antibody? *New England Journal of Medicine*, 289(8):429, 1973. (Letter)

Rubella hemagglutination activity (HI), interpreted previously as occurring in a case of reinfection, has been reconsidered in the face of subsequent results. The HI titers after kaolin and heparin-$MnCl_2$ treatment were 20 and 40, respectively; the HI activity was located in the IgG fractions after sucrose gradient centrifugation and could be removed by absorption with Staphylococcus aureus Cowan I (rich in protein A). However, the development of full-blown clinical rubella in a person with a rubella titer of 20-40 was unexpected. It has since been found that the HI-active material appeared to have a lower density than IgG and was most probably a lipoprotein. This HI activity was probably caused by nonspecific inhibitors. The reliability of serologic tests for rubella antibody is therefore questionable. - *A. C. Schenker.*

University Hospital
Bergen, Norway

2980 Lead-poisoning prevention in Massachusetts. *New England Journal of Medicine*, 289(8):428-429, 1973. (Editorial)

A new testing program in Massachusetts is described which aims to identify children who are at risk and to prevent future exposure to the hazards of lead by controlling the environment. It is suggested that the preschool children should be tested at least once a year until they reach their sixth birthday. Of 24,000 children tested in Boston, 8% had blood levels over 50μg/100ml, and almost 2% required immediate treatment for lead poisoning. The program of lead-poisoning prevention aims at making lead screening a routine part of pediatric care; such poisoning is now a reportable disease. The most efficient method of testing for lead in paint already in place is through the use of X-ray fluorescence analyzers; if hazardous paint surfaces are discovered, property owners will be instructed how to remove or safely cover the offending surfaces. Educational campaigns and legal measures will be adopted in this context. (3 refs.) - *A. C. Schenker.*

2981 LAMM, STEVEN; COLE, BARBARA; GLYNN, KATHRYN; & ULLMAN, WILLIAM. Lead content of milks fed to infants—1971-1972. *New England Journal of Medicine*, 289(11):574-575, 1973.

The probable dietary intake of lead during early infancy was estimated from milk fed to infants. The lead concentrations of milk specimens were determined, and calculations of lead intake were made on the basis of the assumption that milks

were prepared as directed on the label of the product. The results revealed that the ingestion of evaporated skimmed milk, infant formula, or evaporated milk would deliver a much larger lead dosage to an infant than a diet from nonfat dry milk, homogenized cow's milk, or human breast milk. Although the maximum daily permissible intake in early infancy has yet to be established, current reports suggest it to be lower than the 300μg/day proposed by King. The present study reveals that some infants ingest lead in amounts measured in hundreds of μg/day. It is thus deduced that these infants may be at risk of accumulating lead from such milks. (25 refs.) - *A. C. Schenker.*

University of California
I.I.R., 2120 Channing Way
Berkeley, California 92120

2982 FEIGIN, RALPH D.; & SHACKELFORD, PENELOPE G. Value of repeat lumbar puncture in the differential diagnosis of meningitis. *New England Journal of Medicine*, 289(11):571-574, 1973.

Results of a review of 590 charts of patients with meningitis reveal that a diagnosis of bacterial meningitis was made or could not be excluded because of administration of antibiotics before hospitalization in 360 of these cases. Because the spinal fluid (CSF) evaluation is a critical determinant in the diagnosis, repeat lumbar punctures (LP) are advocated. A discharge diagnosis of aseptic meningitis was made in 230 cases, in 145 of which the clinical syndrome and the results of CSF examination permitted an appropriate diagnosis, but in 85 the initial LP revealed a preponderance of polymorphonuclear leukocytes and suggested the possibility of bacterial meningitis. A repeat lumbar puncture necessitated the removal of 37 cases due to antibiotic therapy, but in the remaining 48 patients, a statistically significant ($p<0.001$) decrease was found in the percent of polymorphonuclear leukocytes between the initial LP and the one performed 6-8 hr later. These findings document the peculiar propensity for a rapid shift in CSF cellular morphology after admission. (8 refs.) - *A. C. Schenker.*

St. Louis Children's Hospital
St. Louis, Missouri 63110

2983 NAHMIAS, ANDRE J.; & ROIZMAN, BERNARD. Infection with herpes-simplex viruses 1 and 2 (second of three parts). *New England Journal of Medicine*, 289(14):719-725, 1973.

Recurrent herpes-simplex virus (HSV) infection is discussed from the virologic and immunologic aspects, with a focus on possible mechanisms involved in recurrent or localized infection, once it has recurred. Possible sources of virus may be: exogenous infection; endogenous infection from another site of the body; chronic, continuous, low-level viral multiplication around the site of involvement; and persistence of the virus in a nonreplicating form at, or near, the site of the recurrent infection. The factor common to the various stimuli may be their effect on nerve cells, cells associated with nerve trunks, and nerve endings. From the immunologic viewpoint, the 2 main questions concern the role of the immune factors in determining frequency and severity of recurrences, and the mechanisms involved in curtailing the virus from spreading in the infected person. The maintenance of elevated neutralizing antibody titers is dependent on persistent antigenic stimulation; the size of the unneutralized residual fraction can be diminished by the addition of anti-species globulins or of complement. Additional study is required to explain how the immune responses stop cell-to-cell spread of HSV infections. Evidence relating the HSV-2 to cervical cancer has been obtained by some investigators, but it does not prove the theory. (92 refs.) - *A. C. Schenker.*

2984 NAHMIAS, ANDRE J.; & ROIZMAN, BERNARD. Infection with herpes-simplex viruses 1 and 2 (first of three parts). *New England Journal of Medicine*, 289(13):667-674, 1973.

A review of information concerning the herpes-simplex viruses (HSVs) 1 and 2 is presented, including their structure, composition, and genetic and immunogenic aspects. The viruses consist of structural elements arranged in concentric layers: the core (innermost) consists of DNA in the form of a doughnut, and proteins arranged in the form of a barbell passing through its hole. The core is surrounded by the capsid consisting of protein layers. The capsid is surrounded by the tegument and the envelope. To date, 49 proteins, accounting for 75% of the total genetic information of the

virus, have been identified; at least 27 are structural proteins of the virus. A common antigen has been identified by immunodiffusion tests between HSV and the herpesviruses associated with Burkitt lymphoma of man, Marek's disease of chickens, and the Lucke adenocarcinoma of the frog. Preliminary data suggest that the common antigen is a structural component of the nucleocapsid. It is suggested that the DNAs of HSV-1 and HSV-2 consist of variable sequences, unique for each virus, and invariable sequences shared in common. Biosynthesis of the virus is delineated in 10 steps. Structural and functional alterations of the cell are invariant consequences of productive infection. The consequence of productive infection is the biosynthesis of viral progeny and cell death. (73 refs.) - *A. C. Schenker.*

University of Chicago
Chicago, Illinois

2985 **TRAUB, RENEE G.; MADDEN, DAVID L.; FUCCILLO, DAVID A.; & MCLEAN, THOMAS W.** The male as a reservoir of infection with cytomegalovirus, herpes and mycoplasma. *New England Journal of Medicine*, 289(13):697, 1973. (Letter)

The frequency of occurrence of viral and mycoplasmal agents in a military population undergoing surgery for sterilization was studied in 242 male patients. The data indicated that the *vas deferens* was free of demonstrable viral and mycoplasma agents; this finding conflicts with data reported by Centifanto *et al.*, who found a high rate of herpes in *vas deferens* and other genitourinary tissues. The population in this study differs from that in previous reports in that it included only patients with a negative history of urogenital infections or disease for a previous period of at least 6 months. The recovery rate of mycoplasma from these male Ss was similar to that of mycoplasma recovered from vaginal tracts from a comparable female population. (1 ref.) - *A. C. Schenker.*

National Institute of Neurological
Diseases and Stroke
Bethesda, Maryland

2986 **NAHMIAS, ANDRE J.; & ROIZMAN, BERNARD.** Infection with herpes-simplex viruses 1 and 2 (third of three parts). *New England Journal of Medicine*, 289(15):781-789, 1973.

The effects of herpes-simplex virus (HSV) are analyzed from epidemiological and clinicopathological aspects. When applied to population studies, present serologic technics are still incapable of differentiating among the various possibilities of infection with HSV-1 and HSV-2. All studies suggest that medical and nursing personnel are at particular risk of development of primary HSV infections, since less than 50% have been found with HSV antibodies in their serum. The mouth is the most common site of primary HSV-1 infection, generally seen in labial herpes; eyes and skin are also affected and the presence of skin vesicles is most helpful in identifying neonatal herpes. In older persons, skin lesions below the waist are generally due to HSV-2, often associated with genital infections. Diagnosis of HSV infections is still made in large part on clinical grounds, but some types can be diagnosed only by morphologic examinations of cells obtained from infected sites. Various types of immunizing agents have been used for the treatment and prevention of recurrent herpes, but an important consideration in the use of any HSV vaccine is the danger of using a virus with possible oncogenic potential. (69 refs.) - *A. C. Schenker.*

Division of Biological Sciences
University of Chicago
Chicago, Illinois

2987 **SENIOR, BORIS.** Neonatal hypoglycemia. *New England Journal of Medicine*, 289(15):790-793, 1973.

Causes of neonatal hypoglycemia are discussed; symptoms and signs of hypoglycemia and its management in the asymptomatic and symptomatic infant are outlined. The causes of neonatal hypoglycemia are tabulated under the headings of: too much insulin, too little fuel, and idiopathic. In many cases, the hypoglycemia is transient, and a specific cause cannot be identified. Symptoms of this condition may be lethargy, apnea, agitation, or convulsions; the presence of these symptoms calls for the determination of blood glucose in order to ascertain specificity. Persistent hypoglycemia, even in the absence of symptoms, should cause concern and would be an indication for glucose administration. If the infant is symptomatic, prompt therapy with 15% glucose i.v. is called for, possibly preceded by a more concentrated solution of glucose. If symptoms persist, other causes, such as sepsis, hypocalcemia, and cerebral bleeding, should be excluded. (11 refs.) - *A. C. Schenker.*

2988 **CLARK, LELAND C., JR.** Future horizons of analytical electrochemistry in the neurophysiology of mental retardation. *American Journal of Mental Deficiency*, 77(5):633-644, 1973.

The development of new electrodes which may be used to monitor and control oxygenation in the newborn is discussed. In this review, certain approaches in electrochemistry are highlighted in order to present a view of the possibilities of these methods of study. The important theoretical and practical differences between polarography and potentiometry are explained. The electrodes measure the activity of ions and are insensitive to bound ions. It is conceivable that since these electrodes measure substrates for enzymes (potentiometric enzyme substrate electrodes), enzyme activity can be quantitated by measuring its disappearance rate. Hypoglycemia in the neonate could be measured by use of a glucose electrode, a technique described recently which depends upon an enzyme for its specificity. Analysis of amniotic fluid for pCO_2 is now possible by such means. Microelectrodes have recently been used for intracellular measurements of potassium and chloride and possibly calcium. Such tools should prove invaluable to the study of mental deficiency and brain damage. (84 refs.) - *A. C. Schenker.*

Children's Hospital Research
Foundation
Cincinnati, Ohio 45229

MEDICAL ASPECTS — Etiologic Groupings

Trauma or physical agents

2989 **BULPITT, C. J.** Lead and hyperactivity. *Lancet*, 2(7787):1144, 1972. (Letter)

The association recently reported by Dr. David *et al.* between raised blood-lead levels and hyperactivity was unfortunately arrived at by incorporating into their arguments and statistical analysis a bias favoring the existence of a causal relationship between the two conditions. Even though they admit that the observed raised lead levels may be either a cause or consequence of the child's hyperactivity, the one-tailed *t* test employed in analysis prevents making this distinction. A more appropriate instrument would be the 2-tailed *t* test. - *N. Mize.*

London School of Hygiene and
Tropical Medicine
London WC1B 3EL, England

2990 **NOTHLING, MARTIN M.** A case of Gilles de la Tourette's syndrome in a brain-damaged child. *Medical Journal of Australia*, 2(10):571, 1972. (Letter)

Caution should be exercised in the prescription of haloperidol for treatment of the Gilles de la Tourette syndrome. So far, single blind studies have failed to establish the efficacy of this drug as compared to placebo. Similarly, suggestions that this syndrome has an organic origin are probably too hasty. A recent clinical study of 15 cases showed alternate improvement and aggravation of the tic symptoms to be frequently related to psychological stress factors. (2 refs.) - *N. Mize.*

Prince Henry's Hospital
Melbourne, Vic. 3004, Australia

2991 **BARR, R. F.; LOVIBOND, S. H.; & KATSAROS, E.** A case of Gilles de la Tourette's syndrome in a brain-damaged child. *Medical Journal of Australia*, 2(7):372-373, 1972.

The facial tics and obscene utterances associated with the Gilles de la Tourette syndrome in a brain-damaged 13-year-old girl (WISC IQ, 72) were successfully controlled by daily doses of haloperidol. Prior to the initiation of drug treatment, standard behavior therapy procedures had been attempted but with unsuccessful results. Subsequent supportive family therapy helped to reintegrate the child into family life and effectively secured parental cooperation in the drug treatment regimen. This experience lends further support to a theory of organic causation in Gilles de la Tourette cases. (4 refs.) - *N. Mize.*

Prince Henry Hospital
Little Bay, NSW 2036, Australia

2992 **MARTIN, GILBERT.** Mood-altering drugs and hyperkinetic children (continued). *Pediatrics*, 49(2):310-311, 1972. (Letter)

Employment of refined psychological testing has indicated strengths and weaknesses in hyperactive children and has led ultimately to an increase in their self-confidence and to dramatic intellectual and behavioral improvement. Following completion of diagnostic studies, parents and teachers meet to plan a proper method for aiding the child to concentrate on improving his weak areas through school programs and homework. A short course of Ritalin is employed if this approach is insufficient. (5 refs.) - *B. J. Grylack.*

30 Gross Drive
Loving, AFB, Maine 04750

2993 **ERENBERG, GERALD.** Mood-altering drugs and hyperkinetic children (continued). *Pediatrics*, 49(2):308-309, 1972. (Letter)

While administration of cerebral stimulants may help control hyperactivity in some children, for the majority the extent and duration of improvement are quite limited. Apparently no study has investigated the long-term effects of these drugs on hyperkinetic children or the types of social and educational adaptation made by them in adolescence and adulthood. Indiscriminate placement of all children on drugs whenever they appear to be misbehaving in school is wholly unwarranted. (14 refs.) - *B. J. Grylack.*

Montefiore Hospital
New York, New York 10467

2994 **MARKS, HERMAN B.** Mood-altering drugs and hyperkinetic children (continued). *Pediatrics*, 49(2):309-310, 1972. (Letter)

Conservative use of psychotropic drugs seems to be indicated, in view of gaps in knowledge concerning criteria for diagnosis and management of apparently hyperactive children. While a short-term therapeutic trial with dextroamphetamine sulfate (Dexedrine) or methylphenidate hydrochloride (Ritalin) has produced rapid improvement in learning for the particular period, there is no evidence that use of these drugs will lead to sustained improvement. Any report that a child is now learning once he is taking such a drug should be confirmed by objective tests of increases in reading skills and other specific measures of educational progress. In some children boredom, anxiety, and depression can be manifested as hyperactivity, and parental pressures and teachers' demands may cause psychotropic drugs to be prescribed without reason. (6 refs.) - *B. J. Grylack.*

225 Waterman Street
Providence, Rhode Island 02906

2995 **TURNURE, JAMES E.; LARSEN, SHARON N.; & THURLOW, MARTHA L.** Effects of brain-injury and other subject characteristics on paired-associate performance under paragraph elaboration. *American Journal of Mental Deficiency*, 78(1):70-76, 1973.

Paragraph elaboration training on a paired-associate task, previously shown to produce the greatest positive performance in paired-associate learning and reversal, was given to 137 EMR children with either positive brain-injury, questionable brain-injury, or no evidence of brain-injury. Stimulus materials consisted of 12 pictures of common objects. Each S was given a single training trial in which each picture pair was presented for 7 seconds while the experimenter uttered the paragraph relating the 2 items and the S repeated it. A paired association learning task was initiated immediately after this trial. Immediately after criterion had been reached, the stimulus and response items were reversed. Each S was given 2 reversal trials. The study provides some evidence of differential paired-associate performance of certain brain-injured Ss; this relationship emerged in the analyses of acquisition data. Because of the nature of the data, evidence of brain-injury was equivocal, and the findings can only be considered as tentative. But the distinction between brain-injured and non-brain-injured MR children may be important when investigating language and learning abilities in these children. (18 refs.) - *A. C. Schenker.*

Pattee Hall
University of Minnesota
Minneapolis, Minnesota 55455

2996 TALKINGTON, LARRY W.; & HUTTON, W. ORAN. Hyperactive and nonhyperactive institutionalized retarded residents. *American Journal of Mental Deficiency*, 78(1):47-50, 1973.

Some of the more relevant basic parameters of hyperactivity were observed in inst MR persons (N = 211) and compared with those of a nonhyperactive group of an equal number of Ss. The two groups were compared on 15 behavioral variables and were shown to differ significantly ($p<.01$). The hyperactivity did not demonstrate a significant correlation with other sensory/motor dysfunctions often associated with brain damage. Three characteristics-disrupts activities, stereotyped behavior, and removes/tears clothes-distinguished the hyperactive from the nonhyperactive group. Hyperactive subjects were more frequently being treated with tranquilizers than nonhyperactive subjects, but the design of the study does not permit the behavioral effects of such medication to be estimated. Hyperactivity was noticeably higher in males; it was inversely related to ability level and was most frequent in the 10-19-year bracket. (25 refs.) - *A. C. Schenker.*

Fairview Hospital and Training Center
Salem, Oregon 97310

2997 ALABISO, FRANK. Inhibitory functions of attention in reducing hyperactive behavior. *American Journal of Mental Deficiency*, 77(3):259-282, 1972.

A review of the literature on the process of attention and hyperactivity supports the need for integrating the research findings in these 2 areas in order to develop a program for shaping attention behaviors in hyperactive MR persons. Studies in both areas indicate that attention training programs using operant conditioning techniques to improve span, focus, and selectivity would be constructive supplements to the more prevalent use of drugs and various destimulation techniques aimed at reducing hyperactive behavior. (168 refs.) - *N. Mize.*

Niagara Falls Community Mental Health Center
Niagara Falls, New York 14302

2998 Head injuries in children. *British Medical Journal*, 1(5794):196, 1972. (Editorial)

Recent work in the area of head injuries, a major cause of death in infants and children, has determined that children sustaining minor head injuries are most likely to exhibit later management problems. Collateral studies have shown that environment and the presence of preexisting psychiatric and behavioral disorders especially influence this development. An additional finding of recent interest includes the visualization of normal or dilated—not, as expected, compressed—ventricles in 71 of 75 children with benign intracranial hypertension. (7 refs.) - *N. Mize.*

2999 CRAFT, A. W.; SHAW, D. A.; & CARTLIDGE, N.E.F. Head injuries in children. *British Medical Journal*, 4(5834):200-203, 1972.

Retrospective studies of 200 children (mean age 5.7 years) admitted to hospital with head injuries have yielded suggestive evidence of predisposing psychological and physical factors. An analysis of the causes and consequences of the accidents showed the highest frequency on Saturdays and a preponderance (33%) of road-related accidents, with the high-rise bicycle emerging as especially hazardous. Home accidents, primarily involving toddlers, represented 27.5% of the total. Eight neurosurgical operations were required, 2 children died, and 4 others were discharged with severe neurological deficit. A Rutter teacher assessment of the preaccident personality for 114 of the children was correlated with a pattern of greater than average incidence of left-handedness and higher index scores as compared to controls. (12 refs.) - *N. Mize.*

Royal Victoria Infirmary
Newcastle upon Tyne, England

3000 JENNETT, BRYAN. Respiratory control after acute head injury. *Lancet*, 1(7807):833, 1973. (Letter)

Dr. Gordon's assumptions regarding the management of head injured patients may lead to potentially hazardous treatment for those not familiar with this topic. His advocacy of hyperventilation in unconscious patients seems to stem from an assumption that hypercapnia and raised intra-

cranial pressure are usual sequels of head injury. In fact, unconscious patients with head injuries rarely become hypercapnic; intracranial pressure is not infrequently normal, and should be measured before making a decision regarding such pressure. In his patient with the favorable outcome, there is no convincing evidence that this boy's recovery was attributable to hyperventilation. In the case of the girl, it might be argued that the secondary brain damage might have been prevented by controlled hyperventilation, but maintaining a free airway with spontaneous respiration or controlling the epilepsy sooner might have been equally effective. (4 refs.) - *A. C. Schenker.*

Institute of Neurological Sciences
Southern General Hospital
Glasgow G51 4TF, Scotland

3001 SMITH, SELWYN M.; HONIGSBERGER, LEO; & SMITH, CAROL A. E.E.G. and personality factors in baby batterers. *British Medical Journal*, 3(5870):20-22, 1973.

Electroencephalograms (EEGs) were recorded from 35 Ss who either confessed to inflicting injuries on their children or who were strongly suspected of such behavior. Of these parents, 8 were found to have abnormal EEGs and, on further investigation, were generally found to be of low intelligence, although no lower than in the Ss without EEG abnormalities. All 8 Ss with abnormal EEGs could be defined, according to psychiatric classification, as having a personality disorder. The findings suggest that some baby batterers are closely related to other groups committing acts of violence. This is borne out by the finding that 5 female and 1 male batterers, all with abnormal EEGs, could be classed not only as having a personality disorder but as aggressive psychopaths. (13 refs.) - *A. C. Schenker.*

University Department of Psychiatry
Queen Elizabeth Hospital
Birmingham B15 2TH, England

3002 BATES, TALCOTT. Stimulant drugs and growth of hyperactive children. *Pediatrics*, 52(3):468-469, 1973. (Letter)

The excellent and timely study by Drs. Safer and Allen on suppression of longitudinal growth with dextroamphetamine does not mention dosage. Is there a nonsuppressive dose level? (1 ref.) - *B. J. Grylack.*

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Monterey, California 93940

3003 SAFER, DANIEL; & ALLEN, RICHARD P. Stimulant drugs and growth of hyperactive children. *Pediatrics*, 52(3):469, 1973. (Letter)

In a study of suppression of longitudinal growth with dextroamphetamine, the daily dose ranged from 5 to 40mg and averaged 12.4mg daily, with 10% of Ss receiving the medication 3 times daily. No significant relationship was found between dosage and growth suppression, and it was not determined if doses of less than 5mg daily are nonsuppressive of growth. (1 ref.) - *B. J. Grylack.*

Baltimore County Department of Health
Baltimore, Maryland 21221

3004 LONDON, P. S. Workshop for disabled survivors of severe head injury. *British Medical Journal*, 3(5786):393-396, 1973.

A special workshop for all but the most severely disabled survivors of severe head injury was set up on the premises of the Birmingham (England) Accident Hospital in order to provide some sort of interest and a sense of financial purpose for them. Made possible by a grant from the Nuffield Provincial Hospitals Trust in 1967, costs were borne thereafter by the South Birmingham Hospital Management Committee and subsequently by the Department of Health and Social Security, which has purchased premises adjoining the work center for less severely disabled patients who are likely to return to work. Of the 101 patients who have been accepted into the workshop since its inception, 45 have returned to work. Small, differential work compensation rates have provided some degree of incentive. The Department of Employment may provide financial support for persons undergoing rehabilitation, but

it has rejected some support by citing the Department of Health as the responsible authority. With the government's adhering to this type of policy, the development of progressive programs has often seemed too slow and to lag far behind needs. - *B. J. Grylack.*

Accident Hospital
Birmingham B15 1NA, England

3005 Deliberate injury of children. *British Medical Journal*, 4(5884):61-62, 1973.

Child abuse, with an incidence of possibly 4,600 cases annually in the United Kingdom, or 6 children per 1,000 live births by another estimate, is generally practiced by more or less normal parents under emotional or financial stress who have no one to whom to turn for help. An excellent recently published report on the problem by the Tunbridge Wells Study Group, under the auspices of the Spastics' Society and with the aid of the Department of Health and Social Security (Great Britain), emphasizes that rehabilitation of the family is more important to society than punishment and underlines the need for team work between the hospital, family physician, social services, and police. The consultant in accident and emergency departments also plays a focal role. While the needed research into the effect of various types of management and into the best possible methods of prevention of child abuse will require increases in staff, this research should be implemented in order to protect children's lives. (6 refs.) - *B. J. Grylack.*

3006 **SMITH, SELWYN M.; HANSON, RUTH; & NOBLE, SHEILA.** Parents of battered babies: a controlled study. *British Medical Journal*, 4(3889):388-391, 1973.

In a controlled study 214 parents of battered babies and 76 control parents were compared for CA, social class, psychiatric status, criminality, and intelligence over a 2-year period. Index parents were young (mean CA was 23.5 years for index mothers and 27.0 years for index fathers) and were of significantly lower social class than control parents ($p<0.001$). The 76% and 64% incidence of personality abnormality for index mothers and fathers, respectively, was also highly significant ($p<0.001$). Less severe types of personality disturbance were found more commonly among the mothers. In contrast, one-third of the fathers were psychopaths, and 29% had a criminal record. The difference in IQ distribution between index and control mothers was highly significant ($p<0.001$), index mothers having a mean IQ of 80 as compared with 95 for controls and nearly half of the index mothers being of borderline subnormality or below. The findings suggest that permanent removal of children from parental care may be necessary in cases where an overall psychiatric assessment shows the likelihood of parents' responding to treatment to be remote. (24 refs.) - *B. J. Grylack.*

Queen Elizabeth Hospital
University of Birmingham
Birmingham B15 2TH, England

3007 **SELZER, MICHAEL E.; MYERS, RONALD E.; & HOLSTEIN, STANLEY B.** Unilateral asphyxial brain damage produced by venous perfusion of one carotid artery. *Neurology*, 23(2):150-158, 1973.

A model of unilateral asphyxial brain damage may be produced by venous perfusion of one carotid artery in the monkey. The perfusion of severely deoxygenated and hypercapnic venous blood through 1 internal carotid artery system of the rhesus monkey permits the administration of a severe but partial cerebral asphyxia for prolonged periods. Monkeys sustaining 1 hour of such asphyxia and allowed 3 hours recovery often showed severe unilateral brain swelling and necrosis largely limited to the area of distribution of the perfused system. Affected cerebral tissues showed marked increases in water and sodium and chloride content and decreases in potassium content. The magnitude of changes in sodium and chloride contents of the tissues caused the composition of edema fluid to approach that of a serum transudate. Adequate brain circulation maintained during the period of insult is important to the success of the model. (23 refs.) - *C. Wares.*

National Institute of Neurological
Diseases and Stroke
Bethesda, Maryland

3008 **SATO, S.; & DREIFUSS, FRITZ E.** Electroencephalographic findings in a patient with developmental expressive aphasia. *Neurology*, 23(2):181-185, 1973.

Acquired developmental expressive aphasia has received relatively more attention than congenital or delayed aphasia. Acquired aphasia presents with progressive loss of language, usually followed by convulsive disorder and electroencephalographic abnormalities. Neurologic examination and pneumoencephalography of a patient with developmental aphasia suggested a lesion of the right cerebral hemisphere. Electroencephalography of the patient showed bilateral synchronous temporal spiking in bursts of long duration. An intracarotid sodium amobarbital injection indicated the spiking was a secondary bilateral synchronous discharge originating in the right temporal lobe. Theoretical implications of the case in terms of congenital or delayed aphasia as a result of bilateral dysfunction in homotopic brain areas were not in evidence. The electroencephalographic findings displayed bilateral temporal abnormalities which are postulated to form organizational deficiencies interfering with associations required for speech development. (17 refs.) - *C. Wares.*

University of Virginia School of Medicine
Charlottesville, Virginia

3009 GIBSON, A. G. Non-accidental injury to children. *British Medical Journal*, 4(5888):359, 1973.

The suggestion is made that the legal definition of "grievous bodily harm" is sufficiently explicit and inclusive to describe the various aspects of nonaccidental injuries to children. The use of the legal expression for such injuries would furthermore tend to focus public attention and handling of such cases in a professional, legal framework rather than in a nonprofessional, euphemistic framework. - *C. Wares.*

Chislehurst
Kent
England

3010 SCOTT, W. CLIFFORD M. Hyperactive children. *British Medical Journal*, 1(5858):113-114, 1973. (Letter)

The hyperactive child may be displaying defensive measures against depression, just as in clinical manic behavior noted in adults. Consideration of this possible association should be explored in discussion with the individual child. - *C. Wares.*

3011 CHAPPLE, P.A.L. Hyperactive children. *British Medical Journal*, 1(5853):616-617, 1973. (Letter)

A previous article advocating prescription of stimulant drugs for hyperactive children is challenged on the grounds that amphetamine prescriptions should be seriously limited in future medical practice. It is considered more practical and preferable to teach such children to manage their hyperkinesis from their own resources, since such children are noted to improve with age regardless of treatment. - *C. Wares.*

National Addiction and Research Institute
London SW 10, England

3012 DRESSER, ASTHA C.; MEIROWSKY, ARNOLD M.; WEISS, GEORGE H.; MCNEEL, MILDRED L.; SIMON, GARY A.; & CAVENESS, WILLIAM F. Gainful employment following head injury: prognostic factors. *Archives of Neurology*, 29(2):111-116, 1973.

A select population (864 men injured in the Korean campaign) is examined for features associated with the acute phase of cranial injury that have predictive value in regard to future employment. The employment status was determined 15 years after the injuries, when the men were between 30 and 40 years of age. Of the group investigated, 855 gave information; 640 (75%) were at work, of whom 72 were self-employed and 215 were unemployed. Prior to injury mental status was determined from the score on the Armed Forces Qualification Test (AFQT). In predicting unemployment, the AFQT scores are of first consideration; in this population, these scores were disproportionately low, which predisposed to a low future employment rate, with or without craniocerebral trauma. With injury, the effect is compounded. The amount of brain destruction, as determined by the depth of injury, was more important than the region of the head that was struck in reducing the likelihood of future employment. Prolonged impairment in consciousness provided a poor prognosis for gainful employment, as did serious neurological complications producing deficits in speech, vision, or motor power in the acute phase. (10 refs.) - *A. C. Schenker.*

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American National Red Cross
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Washington, DC 20006

3013 Minimal brain dysfunction. *Lancet*, 2(7827):487-488, 1973. (Editorial)

The term minimal brain dysfunction is defined, and the treatment of this condition in America is contrasted with that in Britain. Drug treatment for hyperkinetic children is sometimes recommended, frequently criticized, and infrequently used in Britain; in America, there are schools full of children receiving methylphenidate or amphetamine-type drugs for hyperactivity. The term minimal brain dysfunction is applied to children of normal intelligence with certain behavioral or learning disabilities assumed to be associated with faulty function of the central nervous system. Most American centers have better provision for helping such children. A number of different professional services have to be brought together to organize such help: pediatric, psychiatric, educational, audiological, ophthalmic, psychological, therapeutic experts, and social workers. Most British pediatricians are ill-equipped by training and experience to deal with children of this type. However, if they are sufficiently motivated they could provide a good service. (27 refs.) - *A. C. Schenker.*

3014 **INGRAM, T.T.S.** Soft signs. *Developmental Medicine and Child Neurology*, 15(4):527-530, 1973.

The symptomatology of minimal organic brain damage is discussed and various neurological signs, called soft signs, are listed. These include: hyperactivity, perceptual-motor impairment, emotional lability, general coordination defects, disorders of attention, impulsivity, disorders of memory and thinking, specific learning disabilities, disorders of speech and hearing, and equivocal neurological signs and EEG irregularity. It should be emphasized that on the basis of so-called soft signs, the pediatric neurologist may reach a diagnosis which has been missed by less sophisticated diagnoses; however, the help of psychiatrists, psychologists, social workers, and therapists is needed in order to establish certain specific abnormalities. It is recommended that pediatricians describe their findings without the use of such terms as soft signs and minimal brain damage; they should evaluate their findings and state the inferences they draw from their evaluation. (24 refs.) - *A. C. Schenker.*

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3015 **STERN, J.** Biochemical hazards and the developing brain. *Developmental Medicine and Child Neurology*, 15(4):521-524, 1973.

Factors contributing to brain damage in early life are enumerated. Exposure to androgens during a limited sensitive period has a permanent effect on the organization of the central nervous system with respect to reproductive activity. Malnutrition in early life retards the functional development of the brain and its biochemical maturation, lowers enzyme activity and brain weight, and results in reduced postnatal cell formation. Where nutritional and hormonal imbalance occur together, the risk of permanent damage is enhanced. The evidence that malnutrition during the early period (second half of pregnancy to the second year of life) causes permanent intellectual impairment is not clear-cut, because other factors may be involved. It is still an open question whether an isolated deficiency of essential fatty acids during the vulnerable period of brain development produces irreversible damage; such deficiency can occur when children with protein-calorie malnutrition are fed with a high-protein diet during rehabilitation. The extreme imbalance found in inborn errors of amino acid metabolism can be regarded as a form of severe and persistent malnutrition. Irreversible brain damage is thus often due to the cumulative effect of adverse factors. (28 refs.) - *A. C. Schenker.*

Queen Mary's Hospital for Children
Carshalton, Surrey, England

3016 **MONEY, R. A.** Head injury. *Medical Journal of Australia*, 1(5):260, 1973. (Letter)

A strong protest is voiced against the statement regarding the role of neurosurgery in the management of head injuries and the comment on its slowness to act. Failure to enlarge the Department of Neurosurgery at the Prince Alfred Hospital, despite numerous reports and requests to the Board of Directors, is blamed for any inadequacies in treatment; the lack of hospital beds is in the forefront as a reason for this failure. The main reason for the rapid increase in accident injuries of this nature is the lack of law enforcement regarding the wearing of seat belts for car passengers. Facilities in New South Wales for dealing with acute injuries still exist; there are not enough beds

to take these patients immediately after the injury. - *A. C. Schenker.*

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3017 SROUFE, L. ALAN; & STEWART, MARK A. Treating problem children with stimulant drugs. *New England Journal of Medicine*, 289(8):407-413, 1973.

The management of children with problems of hyperactivity, learning disability, or minimal brain dysfunction by means of stimulant drugs is discussed. It is asserted that performance is improved on repetitive, routinized tasks that require sustained attention by means of these drugs, both in children and adults. To date, no neurologic sign or test(s) has been established to differentiate hyperactive children or those with minimal brain dysfunction from normal control Ss, and the existence of a unitary syndrome of minimal brain dysfunction has not been established. From the various contradictory theories, it is assumed that some problem children are underaroused and others are overaroused. Accordingly, differential drug response by high or low aroused Ss must be established through cross-validation. It is not known at present whether, following drug treatment, the performance effects persist, or whether drug effects disappear over longer treatment periods. It has been shown that school achievement levels of hyperactive children match those of their normal classmates, a fact which suggests that they have no deficit in actual learning. Although some children and their families benefit from treatment with stimulants, the basic flaw in this treatment is that it cannot teach a child anything. (77 refs.) - *A. C. Schenker.*

Institute of Child Development
University of Minnesota
Minneapolis, Minnesota 55455

3018 SMITH, CLEMENT A. The battered child. *New England Journal of Medicine*, 289(6):322-323, 1973.

The subject of child abuse is reviewed, with particular attention called to the responsibility of professionals concerned in acting on behalf of the child. Most abused children are reported to be less than 4 years of age, and the physical risks are very serious; the damage to the spirit may be even worse. Parents who abuse their children generally have some episode in their own background which may have been traumatic or, if they are not able to receive help from friends or neighbors, they may reach a point of exasperation with the child. The ultimate aim of progress is not limited to recognizing the family-child relation, but to preventing such situations from arising. It is suggested that society force each parent to admit a properly trained health visitor for required basic supervision of physical and emotional health at regular intervals. An example of such arrangement is cited: the 65 health visitors who annually make postnatal home visits to the 3,000 new mothers in Aberdeen, Scotland. (13 refs.) - *A. C. Schenker.*

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Boston, Massachusetts 02115

3019 OLNEY, JOHN W.; HO, OI LAN; & RHEE, VESELA. Brain-damaging potential of protein hydrolysates. *New England Journal of Medicine*, 289(8):391-395, 1973.

The effect of protein hydrolysates, commercially distributed for parenteral alimentation of human infants, on the brain of infant mice was studied. Ss were 120 Webster Swiss albino mice, divided into 4 groups, each of which was treated with a different commercial product; 30 additional mice were used as controls. Animals treated with fibrin hydrolysate at doses of 80 and 100μl/gm were found to have lesions of the type seen in animals treated with monosodium glutamate. The casein hydrolysates were essentially equal in neurotoxic potency at all doses tested. The striking tendency of arcuate nucleus to accumulate glutamic and possibly other acidic amino acids might cause the compounds to be siphoned off and accumulate in that hypothalamic region. Although overt signs of acute toxicity in human infants receiving protein hydrolysate infusions have not been observed, evidence that immature monkeys, as well as rodents, undergo brain damage from low doses of glutamate, without overt signs of acute central nervous system disturbance, tends to invalidate this argument. The findings suggest that the combined total concentration of acidic amino acids should be kept at a relatively low level to provide an adequate margin of safety against their brain-damaging potential to infants. (32 refs.) - *A. C. Schenker.*

Washington University School
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St. Louis, Missouri 63110

MEDICAL ASPECTS – Etiologic Groupings
Diseases or disorders of metabolism and growth

3020 DANKS, DAVID M.; CARTWRIGHT, ELIZABETH; & STEVENS, BRIAN J. Menkes' steely-hair (kinky-hair) disease. *Lancet*, 1(7808):891, 1973. (Letter)

Comments on Menkes' steely-hair, or kinky-hair, disease are offered, together with a few more findings regarding copper metabolism in affected babies. Steely-hair is a better description than kinky-hair for the condition of the hair in this disease; it is not to be confused with the crimped hair in Negroes. The gut mucosa in patients with Menkes' syndrome has been found to contain increased levels of copper, suggesting a fault in the egress of the metal from the mucosal cells to the bloodstream. Intravenous administration of copper-albumin complex raised the serum copper and ceruloplasmin levels to normal. Others have found that the same chemical correction could be achieved with copper-EDTA injected i.m., and this observation has been confirmed. The ceruloplasmin level again fell in 4-6 weeks after a short course of either treatment. No clinical change accompanied the normal serum copper levels. (6 refs.) - *A. C. Schenker.*

Genetics Research Unit
Royal Children's Hospital
Research Foundation
University of Melbourne
Parkville 3052, Australia

3021 Laboratory tests in protein-calorie malnutrition. *Lancet*, 1(7811):1041-1042, 1973. (Editorial)

Tests for the evaluation of protein-calorie malnutrition (protein-energy malnutrition, P.C.M.) are reviewed. Most of the reported tests are in the research category, designed to increase understanding of the pathogenesis of P.C.M. and to improve its treatment. Dr. Sirisinha and his colleagues report that all the 9 components of serum complement were subnormal in children with severe P.C.M. The complement proteins increased to normal concentrations on high protein feeding, but did not respond to high-calorie, maintenance protein diets. The mechanism may explain the reduced resistance to measles and tuberculosis in such patients. A second group of tests is proposed as a practical measure of nutritional status. Whitehead has shown that reduced serum-albumin is a marker of the susceptibility to edema in severe P.C.M. associated with kwashiorkor; in mild cases of marasmus serum albumin is not of diagnostic value. Reduced transferrin and reduced β-lipoprotein or total cholesterol are of potential value as diagnostic tests. For assessing mild degrees of marasmus, reduced urinary creatinine/height index and the urinary hydroxyproline/creatinine index have been used, but are not very reliable. When complications occur with P.C.M., serum electrolytes could prove life-saving. (29 refs.) - *A. C. Schenker.*

3022 HAWCROFT, JANET; & HUDSON, F. P. Sex ratio among phenylketonuric infants in the United Kingdom. *Lancet*, 2(7831):702-703, 1973.

Because of evidence suggesting that serum phenylalanine rises more slowly after birth in females than in male infants with phenylketonuria (PKU), results of a screening program in the United Kingdom were reexamined. The information was available for 377 cases, 189 males and 188 females, born between 1964 and 1972, in whom the diagnosis was made and confirmed before the age of 4 months. The results showed no preponderance of males among the PKU infants detected by the screening. It was found that results from small numbers of patients are unreliable; the preponderance of males among cases detected by a blood test in 1966 (8 to 2) was reversed in the following year (4 to 9). Thus, there is no reason to suppose that cases of classical PKU are being missed by the screening laboratories. (8 refs.) - *A. C. Schenker.*

Phenylketonuria Register Office
Alder Hey Children's Hospital
Liverpool L12 2AP
United Kingdom

3023 **STOCK, M. J.; & RIVERS, J.P.W.** Human protein and energy requirements? *Lancet*, 2(7831):732-733, 1973. (Letter)

A leading article in *Lancet* regarding protein and energy requirements is questioned as to the physiological basis for the recommendations. The fundamental assumption made is that people in energy balance are eating the amount of energy they require; available evidence suggests that energy balance can be achieved at widely different levels of nutrition. Apart from the practice of fixing a requirement, the W.H.O. committee is also criticized for its continued use of the factorial method for assessing energy expenditure. Application of this method to the data recently obtained during the International Biological Programme would indicate that the energy intake of apparently healthy and active Ethiopians and New Guineans is considerably below their factorially estimated requirements. The committee intends its figures to be applied only to populations, not individuals; however, to do so, the age, sex, fecundity, and activity profiles of that population must be fairly well defined, which is impossible at present for most nations. (12 refs.) - *A. C. Schenker.*

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University of London
London W8, England

3024 **CHEN, LINCOLN C.** Nutrition and fertility. *Lancet*, 1(7793):47-48, 1973. (Letter)

Reference to Gopalan and Naidu's article on malnutrition and the rapid population growth points out the confusion created by using the term fertility instead of fecundity. To demonstrate the fertility difference between poorly nourished and well nourished populations, the authors compare India's recent fertility rates with those of now-developed societies one or two centuries ago. There is no evidence that nutrition in developed nations one century ago was substantially better than that in India today. The infant mortality rate in New York City in 1900, for example, was 140/1,000 live births, as compared with India's 126/1,000 in 1970. The article concludes by suggesting that increased demographic and health benefits can be achieved from integrating nutrition and family planning services; however, there is a lack of scientific data in this area. Although difficult to measure, the most important health impact of reduced birth rates may be improved economic wellbeing. Studies on the determinants of malnutrition have shown that low purchasing power is the most important etiological factor causing malnutrition. Rapid population growth impedes an acceleration of economic development in most of the developing world. Further research is necessary for optimal allocation of scarce health and family-planning resources. (6 refs.) - *A. C. Schenker.*

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Baltimore, Maryland 21205

3025 **DOBBING, JOHN.** Nutrition and the developing brain. *Lancet*, 1(7793):48, 1973. (Letter)

The effects of malnutrition and smoking during pregnancy are seen to be related in dealing with the brain development of the fetus. Any growth-retarding influence of appropriate severity and duration, but above all correctly timed to cover the period of the brain growth spurt, may be expected to produce similar lasting changes in the physical brain. The fetus of the smoking mother is released from his growth restriction when he is born, with about six-sevenths of his brain growth spurt period still to come, giving ample opportunity for catch-up. On the available evidence, the whole of the human brain growth spurt period occurs between mid-pregnancy to well into the second postnatal year. This represents an opportunity to actively promote the proper growth of the human brain. (5 refs.) - *A. C. Schenker.*

University of Manchester
Clinical Sciences Building
Manchester M13 OJJ, England

3026 **WILCKEN, BRIDGET; & TURNER, BRIAN.** Homocystinuria: reduced folate levels during pyridoxine treatment. *Archives of Disease in Childhood*, 48(1):58-62, 1973.

The treatment response to pyridoxine is described in 9 patients treated for homocystinuria; changes in the levels of serum and red cell folate activity were estimated and the effects of adding folic acid to the treatment regimen investigated. Six of the patients responded to pyridoxine with a drop in plasma cystine. Those who responded to pyri-

doxine were less severely affected clinically than those who did not; in 3 patients, some months elapsed before their response became complete. This could indicate that tissue stores of methionine and its metabolites must be reduced before plasma levels are altered. The improvement in behavior after biochemical response to pyridoxine was striking. In all the cases treated with pyridoxine in which folate levels were measured, there was a gradual and progressive decrease in serum and red cell folic acid activity to low levels; in no case was this accompanied by hematological changes. Changes in behavior, with marked irritability, could be reversed by giving folic acid. This indicates that patients with homocystinuria who are being treated with pyridoxine should always have a small supplement of folic acid. (22 refs.) - *A. C. Schenker.*

Oliver Latham Laboratory
Cox's Road, North Ryde
N.S.W. 2113, Australia

3027 VALMAN, H. B.; PATRICK, A. D.; SEAKINS, J.W.T.; PLATT, J. W.; & *GOMPERTZ, D. Family with intermittent maple syrup urine disease. *Archives of Disease in Childhood*, 48(3):225-228, 1973.

Maple syrup urine disease is described in 3 children of nonrelated, healthy parents; 2 of the children died, but the third is alive at 5.5 years and has an MA of 6.5 years. The clinical features of this family were typical, with episodes of metabolic acidosis and dehydration precipitated by minor upper respiratory or gastrointestinal tract infections. The high mortality rate in organic acidemias and the possibility of specific vitamin or diet treatment suggest that screening tests should be performed urgently in a patient with metabolic acidosis of unknown etiology. Gas chromatography is an effective screening method for maple syrup urine disease. (21 refs.) - *A. C. Schenker.*

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3028 CADDELL, JOAN L.; & OLSON, ROBERT E. I. An evaluation of the electrolyte status of malnourished Thai children. *Journal of Pediatrics*, 83(1):124-128, 1973.

Changes in tissue and urine electrolytes in children with protein-calorie malnutrition (PCM) were evaluated in Northern Thailand. The Ss were 30 children between the ages of 12 and 50 months; there were 14 boys and 16 girls. Of the 30, 27 had intermittent diarrhea and 5 had intermittent vomiting; 15 had had anorexia; 9 were markedly dehydrated and 12 had grade 3 to 4 peripheral edema. They were classified as 7 with marasmus, 15 with marasmic kwashiorkor, and 8 with kwashiorkor. On admission, 44% of the children had slightly low plasma magnesium values and, following parenteral magnesium-free fluid therapy, 56% of the values were decreased. It is concluded that since low plasma magnesium values may be associated with severe symptomatology, hypomagnesemia is an important finding; however, a normal plasma magnesium value, by itself, does not indicate adequacy of body stores of magnesium. More comprehensive magnesium studies are required for evaluating the magnesium status of the child. (18 refs.) - *A. C. Schenker.*

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1402 S. Grand Blvd.
St. Louis, Missouri 63104

3029 CADDELL, JOAN L.; SUSKIND, ROBERT; SILLUP, HELEN; & OLSON, ROBERT E. II. Parenteral magnesium load evaluation of malnourished Thai children. *Journal of Pediatrics*, 83(1):129-135, 1973.

Magnesium status of 32 malnourished Northern Thai children was evaluated by application of a 56-hour parenteral magnesium load test. 0.49 mEq of magnesium per kg of body weight was given i.m., and plasma magnesium and urinary electrolytes were determined subsequently. A 24-hr test provided the same information as the longer test and was consequently adopted. The patients had relatively mild hypomagnesemia. Significant changes developed in 5 patients who had severe antecedent diarrhea and who were fed the high-protein diet. The 24-hr magnesium load tests revealed no significant difference in magnesium retention during the first week; by day 70, the mean retention was 17.15% (compared with 57.67% on admission), well within the reported limits of normal. No significant correlation was found between magnesium retention and edema, but a significant positive correlation between retention of the initial magnesium load and the severity of diarrhea was observed. The magnesium

load increased the urinary excretion of calcium and sodium. The parenteral magnesium load test was found to be a useful means for assessing the magnesium status in the malnourished child, when an 8-hour preload and a 16-hour postload collection were used. (8 refs.) - *A. C. Schenker.*

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3030 **GRAHAM, GEORGE G.; BAERTL, JUAN M.; CLAEYSSEN, GLADYS; SUSKIND, ROBERT; GREENBERG, ARNOLD H.; THOMPSON, ROBERT G.; & BLIZZARD, ROBERT M.** Thyroid hormonal studies in normal and severely malnourished infants and small children. *Journal of Pediatrics*, 83(2):321-331, 1973.

Thyroid hormone levels were determined in infants and small children with marasmus or marasmic kwashiorkor within 24 hours of admission and again after partial rehabilitation; control Ss were studied concomitantly. In the control group, thyroxine (T_4) decreased from a mean of 15.6 in 2.1-3.2-month-old infants to 0.5μg/100ml in 30-39-month-old children. Marasmic infants had a mean T_4 of 9.5μg/100ml, which was significantly lower than controls for the same age (12.3μg/100ml). All thyroid stimulating hormones (TSH) but one were below the sensitivity of the assay in the marasmic infants. On recovery these infants showed no remarkable change in any parameter except free T_4 (FT_4), which fell in 3 of 5 paired values. TSH levels were the same in patients with marasmus both before and after treatment; in those with kwashiorkor, they were normal on admission and low or normal during recovery. FT_4 was elevated in 4 of 7 of the patients but, as in marasmus, when high on admission it fell to normal or low levels in a few weeks. In marasmus thyroxine-binding globulin was not decreased enough to account for low T_4 values; thyroxine-binding prealbumin binding capacity does not change in malnutrition and may even increase. (22 refs.) - *A. C. Schenker.*

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3031 **FRIMPTER, GEORGE W.** Aminoacidurias due to inherited disorders of metabolism. (second of two parts). *New England Journal of Medicine*, 289(17):895-901, 1973.

Disorders of metabolism are described for the branched-chain amino acids, disorders of the urea cycle, histidinemia, imino acid disorders, hyperglycinemia, and other aminoacidurias; all are inherited disorders. The review includes details of onset and prognosis of the illness, possible etiology, treatment as to diet, type of inheritance, and testing of urine. The extent of MR associated with these conditions is also given in some. Blood levels are cited, together with type of assay used to detect the disorder. (87 refs.) - *A. C. Schenker.*

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San Antonio, Texas 78284

3032 **FREYRE, ELEODORO A.; RONDON, OSCAR; BEDOYA, JOSE; LLERENA, MARCELO; & TAMAYO, MARCINA.** The incidence of bacteriuria and pyuria in Peruvian children with malnutrition. *Journal of Pediatrics*, 83(1):57-61, 1973.

The incidence of bacteriuria and pyuria was assessed in 200 malnourished and 118 well-nourished children (all patients seeking medical help) from Arequipa, Peru. Eight patients in the malnourished group and 4 in the well-nourished group had bacteriuria $>10^5$ colonies/ml on the initial culture; the most common organism isolated was *Escherichia coli* in 9 instances. The patients with colony counts of $<10^4$ colonies/ml were considered to have nonsignificant bacteriuria because, with only 2 exceptions, the cultures when repeated showed $<10^3$ colonies/ml and because a significantly lower incidence of pyuria was found in these patients compared to those with significant bacteriuria. The results revealed that the incidence of bacteriuria and pyuria in malnourished children is similar to that in well-nourished control Ss. (12 refs.) - *A. C. Schenker.*

Universidad Nacional de San Agustin
Arequipa, Peru

3033 **KMROWER, G. M.; & SARDHARWALLA, I. B.** Screening for inherited metabolic disease. *British Medical Journal*, 3(5824):476, 1972. (Letter)

Manchester's screening program for inherited metabolic diseases is quite similar to that operating in Birmingham, with the exception that it handles a larger number of babies—up to 75,000 per year—and covers an area between 3,500-4,000 square miles. Both programs use plasma chromatography, but because of its larger scale of operations, Manchester focuses on only 6 amino-acid disorders—phenylketonuria, histidinemia, homocystinuria, maple syrup urine disease, tyrosinemia, and prolinemia—not the 32 detectable in the smaller Birmingham program. Specimen casualty rates of 5.5%-6.0% and laboratory costs are similar for both programs. Results to date from screening 160,843 blood samples include the identification of 25 cases of phenylketonuria, 6 cases of histidinemia, 2 cases of prolinemia, and 1 each of homocystinuria and hyperlipidemia. (3 refs.) - *N. Mize.*

Royal Manchester Children's Hospital
Manchester, England

3034 **HARLAND, P.S.E.G.; & PARKIN, J.M.** T.S.H. levels in severe malnutrition. *Lancet*, 2(7787):1145, 1972. (Letter)

Double-antibody radioimmunoassay of serum-thyroid stimulating hormone (TSH) in 9 Ugandan children with severe malnutrition has supplied further evidence that decreased TSH release is related to the frequently observed reduced thyroid function in these affected children. These findings were additionally confirmed when TSH values continued to rise significantly with treatment. (7 refs.) - *N. Mize.*

Royal Victoria Infirmary
Newcastle upon Tyne NE1 4LP, England

3035 **DANES, B. SHANNON; DEGNAN, MARK; SALK, LEE; & FLYNN, FREDERICK J.** Plasma infusions in the Hurler syndrome. *American Journal of Diseases of Children*, 125(4):533-535, 1973.

Weekly infusions of normal plasma over a 10-month period have appeared not to modify the development of Hurler's syndrome in an affected girl during the first year of life. Progression of the expected physical and mental stigmata continued unabated, and no significant changes in urinary excretion of mucopolysaccharides or mucopolysaccharide degradation products were noted. (9 refs.) - *N. Mize.*

The New York Hospital
New York, New York 10021

3036 **HANEFIELD, F.; *CROME, L.; FRANCE, N. E.; & JACKSON, A.D.M.** Congenital adrenal hyperplasia. Report of a case with neurological complications. *Archives of Disease in Childhood*, 48(7):554-559, 1973.

A female with congenital adrenal hyperplasia was diagnosed at birth on the basis of family history, abnormal genitalia, and elevated urinary 17 ketosteroids. She was treated with salt and deoxycortisone acetate. At age 10 months, the child became unconscious and had convulsions. Laboratory findings at the time of admission included hypernatremia, metabolic acidosis, and hypoglycemia. With appropriate treatment, the blood chemistry returned to normal within 24 hours, but the child remained unconscious, spastic, and had frequent fits. This state persisted until the child's death at 14 months. Necropsy revealed gross thickening of the adrenal cortex, brain weight of 403g (vs 944g expected for age), and bilateral opercular defects in the brain. Neurological findings included cortical and cerebellar atrophy with changes similar to those found in sudanophil leukodystrophy of the white matter, neuronal atrophy and astrocytic overgrowth in the thalamus, widespread gliosis, and atrophy in the brain stem and dorsal columns of the spinal cord. Except for the association of adrenal disease, the clinical and pathological findings resembled those of Alper's disease. The association of adrenal cortical atrophy with sudanophil leukodystrophy has been recognized as a distinct syndrome. The role of adrenal dysfunction in the development of the encephalopathy in this case is unknown. (35 refs.) - *V. J. Goldberg.*

*Queen Mary's Hospital for Children
Carshalton, Surrey, England

3037 **GRANT, D. B.; HAMBLEY, JUDY; BECKER, DOROTHY; & PIMSTONE, B. L.** Reduced sulphation factor in undernourished children. *Archives of Disease in Childhood*, 48(8):596-600, 1973.

The levels of serum sulfation factor (SF), serum growth hormone (HGH), albumin, and transferrin were measured serially in 5 children treated for protein-calorie malnutrition (PCM). The SF levels were initially very low and began to rise after 5 days of treatment in 3 Ss, but after 4 weeks the SF levels were below those of controls. The initially elevated HGH levels fell to within normal levels in 3 cases, and there was no significant correlation between changes in HGH and SF. The initially depressed serum albumin and transferrin levels rose during treatment along with SF levels. Significant correlations were found for changes in albumin with SF and changes in transferrin with SF. Serum SF may mediate the growth-promoting effect of HGH and may act via feedback mechanisms to control HGH levels, as decreased SF levels are found in HGH deficiency and in end-organ unresponsiveness to HGH. Studies of the relation between SF and other biochemical changes in PCM may give more information in the role of SF in metabolism. (20 refs.) - *V. J. Goldberg.*

Clinical Research Centre
Watford Road
Harrow, Middlesex HA1 3 UJ, England

3038 **EMMERSON, B. T.; & THOMPSON, L.** The spectrum of hypoxanthine-guanine phosphoribosyltransferase deficiency. *Quarterly Journal of Medicine*, 42(166):423-437, 1973.

Eight patients with hypoxanthine-guanine phosphoribosyltransferase (HGPRTase) deficiency are described in whom there was no correlation seen between the severity of the clinical manifestations of the deficiency and the severity of deficiency of HGPRTase activity when measured in erythrocytes. Inspection of the histories and clinical manifestations of the Ss studied revealed that the most severe clinical manifestations did not necessarily occur in patients with lowest enzyme activities. Although all the cases exhibited overproduction of urate, the clinical manifestations varied widely; some were incapacitated with gout, were troubled with urate calculi or developed renal insufficiency, and others were asymptomatic. While the kidneys are healthy and able to excrete the excessive amount of produced urate, the serum urate remains normal and there is no tendency to gouty arthritis, but total urinary excretion of urate is high. So long as the urine volume is large, there are no problems, but if the volume is reduced, urate crystallization is promoted. The lack of correlation between HGPRTase and clinical status may be due to the method used for determination, the choice of erythrocytes for this determination, stability of enzyme, or time of sampling. (21 refs.) - *A. C. Schenker.*

University of Queensland
Department of Medicine
Brisbane, Australia

3039 **FOMON, S. J.; THOMAS, LORA N.; FILER, L. J., JR.; ANDERSON, THOMAS A.; & BERGMAN, KARL E.** Requirements for protein and essential amino acids in early infancy. Studies with a soy-isolate formula. *Acta Paediatrica Scandinavica*, 62(1):33-45, 1973.

Thirteen full-term female newborn infants were fed a soy-isolate formula from age 8 to 112 days in order to determine the amino acid requirements needed for adequate growth. The rates of weight and height gains, the serum urea nitrogen, total protein, and albumin levels were similar among infants fed soy-isolate formula and breast-fed infants. Metabolic balance studies of 8 infants revealed that nitrogen retention and fat absorption were similar to that observed in cow or human milk-fed infants. The caloric intake of infants receiving soy-isolate formula was slightly greater, and the protein intake was slightly lower among infants receiving soy-isolate formula (containing 1.62g protein/100kcal) than among those receiving a cow-milk formula (containing 1.77g protein/100kcal). The requirements for 10 amino acids are expressed in terms of g/100kcal, because calorie intake reflects both body size and rate of growth. Since infants fed this diet had satisfactory growth, the protein and amino acid requirements are no greater than the amounts consumed. The requirements for isoleucine and methionine (mg/kg/day) were less than those determined previously. (23 refs.) - *V. J. Goldberg.*

University of Iowa
Iowa City, Iowa 52240

3040 FISHLER, K.; DONNELL, G. N.; BERGREN, W. R.; & KOCH, R. Intellectual and personality development in children with galactosemia. *Pediatrics*, 50(3):412-419, 1972.

A longitudinal study of 45 galactosemia patients (GAL) (23 female) was done to assess the effects of dietary treatment on IQ, visual perceptual function, and personality development. Eight of 45 were aged 5½ or below; their IQ ranged from 78 to 122. Thirty of 45 were aged 6 to 15; their IQ ranged from 40 to 117. Seven of these attended special classes for MR or aphasia. Ten of 30 school-age GAL exhibited normal performance on Bender-Gestalt designs, and 60% had normal EEG. No correlation of low IQ and visual perceptual difficulties was found, as 8 with normal IQ had mild to moderate visual-perceptual difficulties. Seven of 45 GAL were aged 16 to 23; their IQ ranged from 78 to 104. All 7 were high school graduates, but 5 had required special class placement. Visual perceptual function was normal in 5 of 7 adult GAL, and EEG was normal in 4. In 10 families with 2 or more GAL siblings, the diagnosis and treatment of the younger sibling began at birth, but there was no mean difference in mean IQ of older vs younger siblings. There were no IQ differences between GAL and non-GAL siblings. Late diagnosis (4 to 11 months) was associated with low IQ, greater visual-perceptual difficulties, and EEG abnormality. The problems of poor self-image and the behavior consequently displayed by GAL of all ages may have been due to the sense of apartness imposed by the dietary restrictions. (39 refs.) - *V. J. Goldberg.*

Children's Hospital of Los Angeles
Los Angeles, California 90051

3041 LUND, H. T. Case report: primary hyperparathyroidism in childhood. *Acta Paediatrica Scandinavica*, 62(3):317-320, 1973.

A 12-yr-old boy with hypercalcemia and kidney stones had primary hyperparathyroidism, a disease which is probably underdiagnosed among children. Tests made to differentiate between nonparathyroid hypercalcemia and primary hyperparathyroidism included tubular reabsorption of calcium, phosphate excretion index, tubular reabsorption of phosphate, and a cortisone test. A parathyroid gland adenoma was removed. The patient was symptom-free and had normal serum calcium and phosphate levels 1 year later. Twenty-five percent of primary hyperparathyroidism patients are between the ages of 15 and 35; it seems likely that the disease diagnosed in early adulthood in these cases may have started during childhood. (21 refs.) - *V. J. Goldberg.*

Nordvangs Alle 11
2600 Glostrup, Denmark

3042 BERGLUND, G.; & RABO, E. A long-term follow-up investigation of patients with hypertrophic pyloric stenosis—with special reference to the physical and mental development. *Acta Paediatrica Scandinavica*, 62(2):125-129, 1973.

The effects on future growth of inanition due to hypertrophic pyloric stenosis in infancy were studied. The 202 patients treated for this condition between 1922 and 1942 were classified according to the severity of inanition during the disease, and it was possible to examine 176 of the survivors who had registered for military service. There was a significant decrease in adult height (compared to the mean height of all recruits) which correlated significantly with the severity of infantile inanition. Of 88 men with brothers, only 15 were taller than their sibling. The degree of inanition was associated with decreased IQ and low adaptation test scores, but the correlations were not statistically significant. Low fertility was found among those with the most severe inanition; of the 189 children sired by these men, 118 were males. These findings suggest that physical but not mental growth is retarded by a short period of inanition during early infancy. (23 refs.) - *V. J. Goldberg.*

Barnsjukhuset
S-416 85 Goteborg, Sweden

3043 KEATING, JAMES P.; FEIGIN, RALPH D.; TENENBAUM, STANLEY M.; & HILLMAN, RICHARD E. Hyperglycinemia with ketosis due to a defect in isoleucine metabolism: a preliminary report. *Pediatrics*, 50(6):890-895, 1972.

A previously undescribed metabolic defect was found in an infant whose clinical signs mimicked proprionic acidemia and methylmalonic acidemia. The patient had hyperglycinemia, hyperam-

monemia, ketonuria, and hyperglycinuria. After the infant was placed on a 1.5g protein/kg/day diet, the clinical status and biochemical parameters improved. At age 1 year, the child's weight, height, and head circumference were in the tenth, seventy-fifth, and fiftieth percentiles for age, motor development was retarded by 3-4 months, and no focal neurological deficits were found. The absence of methylmalonic acid, failure of threonine to provoke ketosis, and normal proprionate catabolism by cultured fibroblasts suggested that the defect in isoleucine metabolism may be a failure to convert keto acid intermediates to proprionyl CoA. (11 refs.) - *V. J. Goldberg.*

St. Louis Children's Hospital
500 Kingshighway
St. Louis, Missouri 63110

3044 **ANDERSSON, H.; HAGNE, I.; & ROOS, B. E.** Homovanillic acid and 5-hydroxyindoleacetic acid in cerebrospinal fluid of a child with familial dysautonomia. *Acta Paediatrica Scandinavica*, 62(1):46-48, 1973.

The cerebrospinal fluid levels of homovanillic acid (HVA) and 5-hydroxyindoleacetic acid (5-HIAA) were measured in a child with familial dysautonomia in order to determine the pathogenesis of the disease. The levels of 5-HIAA were normal, while HVA was elevated. The increase in HVA after probenicid loading was 13%, vs 200% observed in normal adults. The elevated HVA may have been due to decreased dopamine-β-hydroxylase (DBH) activity, which would result in an accumulation of dopamine and dopamine metabolites. A DBH deficiency would also result in a relative deficiency of noradrenalin, which may account for the observed symptoms. (11 refs.) - *V. J. Goldberg.*

Sahgrenska Sjukhuset
413 45 Goteborg, Sweden

3045 **BURGER, HENRY G.; & PATEL, YOGESH, C.** The value of serum thyrotrophin measurement in the diagnosis and management of hypothyroidism. *Medical Journal of Australia*, 2(6):293-297, 1972.

The free thyroxine index (FTI) and serum levels of thyrotrophin (TSH) were measured in normal S, S with euthyroid goiter, primary hypothyroidism, secondary hypothyroidism, autoimmune thyroiditis, and euthyroid S previously treated for thyroid toxicosis. The normal range of FTI (defined as T_4I X $T_3RU/100$, where T_4I = thyroxine iodine and T_3RU = triiodothyroxine resin uptake) was 1.9 to 7.0, and the mean serum TSH was 1.03μu/ml. In 85 patients with decreased FTI, TSH levels were elevated above normal with a mean of 133μu/ml. The highest TSH levels were observed in those with spontaneous or postthyroidectomy hypothyroidism. Among 12 hypothyroid patients with pituitary or hypothalamic disease, the mean TSH was below 7.0μu/ml. Normal FTI was associated with elevated TSH levels in 10 of 61 radioiodide-treated S, 2 surgically treated S, and 4 of 4 autoimmune thyroiditis S. A correlation of serum TSH and FTI shows that it would be more practical to consider the normal lower limit for FTI to be 3 and values between 1.9 and 3.0 as borderline. Twenty-seven primary hypothyroid patients with mean FTI of 1.5 and mean TSH of 109μu/ml were given 0.2mg/day of T_4. When they were clinically euthyroid, the mean FTI was 7.2 and the mean serum TSH was 0.13μu/ml. These findings confirm the usefulness of serum TSH measurements in the diagnosis and management of hypothyroidism. An explanation of the elevated TSH observed in euthyroid S may be that a greater stimulus is needed to maintain adequate secretion in a thyroid gland that has been ablated (surgery or radioiodide) or impaired by thyroiditis. (24 refs.) - *V. J. Goldberg.*

Prince Henry's Hospital Medical
Research Centre
Melbourne, Vic. 3004, Australia

3046 A new genetical disorder of copper metabolism. *Medical Journal of Australia*, 2(6):291-292, 1972. (Editorial)

A defect in the intestinal absorption of copper has been discovered to be the underlying defect in Menkes' kinky-hair syndrome. This syndrome is characterized by progressive cerebral degeneration, tangling and depigmentation of the hair, and death by age 3 years. There are changes in the elastic fibers of the arteries and the hair, gross serum copper deficiencies, and failure to absorb orally administered copper. Copper is needed for disulphide bridge formation in sheep wool and presumably in human hair, and is required by the enzymes involved in the lysine cross linkage of

elastin. The impaired function of the copper-containing cytochrome oxidase may contribute to the hypothermia and abnormal brain lipid composition observed in humans. If placental transfer of copper is similarly impaired, copper deficiency may exist before birth. Treatment consists of intravenous administration of Cu-albumin or Cu-histidine complexes. The finding of blocked copper absorption indicates that copper absorption is an active process. (12 refs.) - *V. J. Goldberg.*

3047 **LENARD, H.G.; & SCHULTE, F. J.** Bioelectric phenomena of abnormal brain development. Phenylalanine, thyroid hormone, and EEG power spectra. *Pediatric Research*, 7(1):51-52, 1973. (Abstract)

Computer analysis of the EEG power spectra showed an enhanced development of spindle rhythms in infants with untreated phenylketonuria (PKU). The spectra were significantly abnormal in the 8-16cps range as early as 5 weeks after term birth. Changes in the spectrum were less marked in infants with early introduction of dietary treatment than in children with long-lasting hyperphenylalaninemia and severe MR. A striking lack of spindle rhythms was a constant phenomenon in infants and children with untreated primary or secondary hypothyroidism; power in the spindle range increased under hormonal substitution. A normal spindle peak was obtained only in those patients whose further intellectual development was near normal. The increase of spindle activity in PKU may be due to a depletion of thalamocortical neurons of inhibitory transmitters, such as serotonin. Delayed morphological maturation of thalamocortical synaptic connections may account for the lack of spindles in hypothyroidism. - *A. C. Schenker.*

University of Gottingen (Pediatrics)
Gottingen, West Germany

3048 **GIOVANNINI, M.; RIVA, E.; MONDINO, A.; & FUMERO, S.** Kinetics of glutamine intestinal absorption in phenylketonuric patients. *Pediatric Research*, 7(1):60, 1973. (Abstract)

Intestinal absorption was investigated in phenylketonuric patients by an oral load of glutamine, since plasma levels of this compound in such patients are known to be low. The glutamine was administered to 6 treated and 4 untreated patients and to 6 normal Ss. The glutamine absorption kinetics were determined at 0, 1, and 3 hrs, and were found to be similar in all 3 groups. It was thus demonstrated that the low plasma levels of glutamine in phenylketonuria were not due to an impaired intestinal absorption of this amino acid. - *A. C. Schenker.*

II Clinica Pediatrica Universita
di Milano
Milan, Italy

3049 **DER KALOUSTIAN, V. M.; AWDEH, B.; HALLAL, R.; & WAKED, N.** Human hypoxanthine-guanine phosphoribosyl transferase isozyme patterns. *Pediatric Research*, 7(1):60-61, 1973. (Abstract)

With the object of elucidating the structure of human hypoxanthine-guanine phosphoribosyl transferase (HGPRT), isoelectric focusing was performed on normal male human erythrocyte hemolysates with polyacrylamide gel electrophoresis. The run lasted 48hr and the pH range was 5-7. Combined electrophoresis and autoradiography revealed 3 bands on the X-ray film, corresponding to 3 HGPRT isozymes. The gels were cut into 2mm strips which were eluted in buffer; the reaction for HGPRT was then run. Three enzymatic peaks were discovered which corresponded to bands on the X-ray films. The isoelectric points, using pH 5-7 range ampholytes, were: peak I, pK 6.4; peak II, pK 6.15; and peak III, pK 6.02. The isoenzymes of HGPRT appear to result from posttranscriptional nongenetic alterations. - *A. C. Schenker.*

American University Medical
Center
Beirut, Lebanon

3050 **GITZELMANN, R.** Screening methods: microbiological assays—enzyme spot test for galactosemia. *Pediatric Research*, 7(1):63-64, 1973. (Abstract)

Tests for galactosemia are described: the metabolite inhibition assay, a test which detects galactose 1-phosphate as well, and an enzyme spot screening

test. The former makes use of an *Escherichia coli* mutant whose growth is inhibited by galactose, and will discover hypergalactosemia either due to galactose 1-phosphate uridyl transferase deficiency or to galactokinase deficiency. Another test, one by Paigen, is used in the absence of galactose from the medium whereby an epimerase-less *E. coli* mutant is lysed by a phage; lysis is prevented by galactose, and bacterial growth will thus signal hypergalactosemia. The enzyme spot screening test has been adapted to blood collected and dried on filter paper; presence of transferase is indicated by fluorescence emitted by reduced nicotinamide dinucleotide phosphate (NADPH). This test is not always successful because of lack of fluorescence. - *A. C. Schenker.*

Laboratory for Metabolic Research
University of Zurich
Kinderspital, Zurich
Switzerland

3051 **LIE, S. O.; MCKUSICK, V. A.; & NEUFELD, E. F.** Simulation of genetic mucopolysaccharidoses in normal human fibroblasts by alteration of medium pH. *Pediatric Research*, 7(1):57, 1973. (Abstract)

The effect of changes in pH of the cell culture medium upon the metabolism of sulfated mucopolysaccharides is described. Catabolism of these molecules was progressively inhibited as the pH of the growth medium was raised from 6.8 to 8.0; this capacity was restored by lowering the pH, and the reactivation did not require protein synthesis. Such pH dependence was not observed in cells from patients with genetic impairment of mucopolysaccharide degradation, such as Hurler or Hunter syndromes. It is submitted that the inactivation of a lysosomal function in cultured cells by raising the medium pH underlines the importance of a certain proton concentration for the normal function of this organelle. In support of this hypothesis, it was found that antimalarial agents (chloroquin, quinine) inhibited mucopolysaccharide degradation; these drugs are probably concentrated in the lysosomes and raise the intralysosomal pH. - *A. C. Schenker.*

Johns Hopkins Hospital
Baltimore, Maryland

3052 **SHAW, K.N.F.; KOCH, R.; & DONNELL, G. N.** Vitamin B_{12}-responsive methylmalonicacidemia (MMA). *Pediatric Research*, 7(1):59, 1973. (Abstract)

The successful treatment of an infant with methylmalonicacidemia (MMA) by means of vitamin B_{12} is described. The symptoms of the 23-day-old infant included: poor feeding, weight loss, and hyperventilation; the baby was lethargic and dehydrated with apneic spells and hyperpnea, cyanosis, and bradycardia. The MMA showed results of 18,000-23,000mg/gm creatinine (normal 2-5mg). With 10% glucose i.v. and 400μg vitamin B_{12}/24hr i.m., the MMA excretion decreased to 50-150mg/gm Cr in 3 days, associated with dramatic clinical improvement. Following continued treatment with increasing doses of the vitamin, the patient continued to progress well clinically. - *A. C. Schenker.*

Children's Hospital of Los Angeles
University of Southern California
School of Medicine
Los Angeles, California

3053 **DACOU-VOUTETAKIS, C.; ANAGNOSTAKIS, D.; NICOLOPOULOS, D.; & MATSANIOTIS, N.** Small for dates neonates: evidence of defective gluconeogenesis from aminoacids. *Pediatric Research*, 7(1):55, 1973. (Abstract)

Glucose formation from aminoacids was examined in 22 small-for-date (SFD), 6 preterm (PT), and 10 full-term (FT) neonates to discover whether intrauterine malnutrition prevents normal development of enzymes involved in gluconeogenesis. L-arginine (2.38mM/kg) or saline was given orally, and blood glucose (BG) was determined at intervals between -30 to 120 minutes. BG increments following the administration of arginine in FT, PT, and SFD neonates averaged 21.4, 13.5, and 9.8mg/100ml, respectively; the increment after saline was 3.7mg%. The difference in the response to the amino acid was significant between FT and SFD ($P<0.001$), and between PT and SFD ($P<0.02$) neonates. In 72.7% of SFD neonates, arginine produced a BG rise which was smaller than the mean value minus 2 SD of the FT group and

similar to that caused by saline. In the remaining 27.3% the response was similar to that in FT babies. The data suggest impaired gluconeogenesis in the dystrophic neonate. *A. C. Schenker.*

Department of Pediatrics
Athens University
Athens, Greece

3054 **CURTIUS, H.-CH.; & BAERLOCHER, K.** Inhibition of DOPA-formation in PKU-patients having a high plasma phenylalanine concentration. *Pediatric Research*, 7(1):51, 1973. (Abstract)

Loading tests with deuterated L-tyrosine (150mg/kg) were performed to determine the *in vivo* rate of conversion of tyrosine to biogenic amines in phenylketonuric (PKU) patients. Tests were done in patients who had high, moderately high, or low plasma phenylalanine concentration, as well as in controls. In patients with high plasma phenylalanine concentrations (25-35mg/100ml), only a slight increase of urinary metabolites of biogenic amines was noted; when these concentrations were 15-20mg/100ml, excretion was more pronounced. When plasma phenylalanine was low, tyrosine loading increased the urinary metabolites to almost the same degree as in normal controls. From these studies it appears that the *in vivo* tyrosine 3-hydroxylase activity and formation of L-DOPA and other biogenic amines depended on the phenylalanine concentration in the plasma and tissues. After a single dose of L-DOPA to patients with approximately 30mg/100ml plasma phenylalanine, the same urinary metabolites were excreted at markedly increased concentrations. *In vivo* inhibition of L-DOPA formation may constitute an important factor in the pathogenesis of neurological symptoms in PKU. - *A. C. Schenker.*

University Children's Hospital
Zurich, Switzerland

3055 **WIESMANN, U.; VASSELLA, F.; & HERSCHKOWITZ, N.** Genetically determined leakage of lysosomal enzymes: a possible pathogenetic mechanism leading to an atypical mucopolysaccharidosis (I-cell disease). *Pediatric Research*, 7(1):52, 1973. (Abstract)

Abnormal morphology of lysosomes, with storage of various material in liver cells and peripheral nerve, was observed in a patient with atypical mucopolysaccharidosis (I-cell disease) by electron microscopy. The finding suggested a faulty degradation of lysosomal substrates due to enzyme deficiency. In the conditioned media in which the fibroblasts of 4 patients with I-cell disease had been growing for 3 days, increased lysosomal enzyme activities were measured. In order to confirm this finding *in vivo*, lysosomal enzymes were measured in plasma, urine, and spinal fluid of the above patient. Up to 100-fold of normal enzyme activities were found in these fluids. The increased enzyme levels could not be corrected by drugs. Loss of lysosomal enzymes could lead to intracellular depletion of enzymes in the cells of this patient and cause the metabolic abnormalities. - *A. C. Schenker.*

University of Bern (Pediatrics)
Bern, Switzerland

3056 **OKKEN, A.; VAN DER BLIJ, J. F.; & HOMMES, F. A.** Citrullinaemia and brain damage. *Pediatric Research*, 7(1):52-53, 1973. (Abstract)

A patient with citrullinemia who developed signs of brain damage after 60 hours of apparently normal life is described. Increased concentrations of blood ammonia could not be demonstrated, but blood citrulline increased to 2.6 mM. A liver biopsy demonstrated the virtual absence of argininosuccinate synthetase. The activities of carbamyl phosphate synthetase and ornithine transcarbamylase were higher than those of controls, while the activity of arginase was lower. Postmortem examination of the brain revealed massive destruction of brain tissue. In slices of adult rat brain, aerobic glucose utilization was inhibited 30% by 5mM citrulline; perfusion of rat brain *in situ* showed a constant rate of glycolysis, which was inhibited by the addition of 5mM citrulline to the perfusion medium by 25%. Thus, citrulline in concentrations observed in acute citrullinemia can be toxic to a very basic metabolic process in the brain. - *A. C. Schenker.*

University of Groningen (Pediatrics)
Groningen, The Netherlands

3057 **WALKER-SMITH, JOHN; & BLOMFIELD, JEANETTE.** Wilson's disease or chronic copper poisoning? *Archives of Disease in Childhood*, 48(6):476-479, 1973.

The finding of raised copper levels in the bore water supply consumed by a 14-month-old boy who presented at that age with ascites and was found to have severe micronodular cirrhosis complicated what might otherwise have been a diagnosis of Wilson's disease of unusually early onset. The child subsequently died from the toxic effects of excess copper, but the exact cause—Wilson's disease or chronic copper poisoning—was not determined. While the boy showed many of the clinical and biochemical features of Wilson's disease, including low plasma ceruloplasmin level, high plasma free copper, raised urinary copper output, and a typical histological picture, the severity of the pathology and the early age of presentation make the final diagnosis uncertain. (15 refs.) - *N. Mize.*

St. Bartholomew's Hospital
London E.C.1, England

3058 **PAISEY, R. B.; ANGERS, MARIELENA; & FRENK, S.** Plasma cortisol levels in malnourished children with and without superimposed acute stress. *Archives of Disease in Childhood*, 48(9):714-716, 1973.

Plasma cortisol levels, measured by a competitive protein binding technique at admission and during treatment in 7 children with kwashiorkor and in 13 with marasmus, were found not to differ from the levels found in 24 normal children. When acute stress factors, such as infection, hypoglycemia, hypothermia, and acidosis, complicated the protein-calorie malnutrition, the affected children responded with raised plasma levels of cortisol, indicating that the adrenocortical function was unimpaired. (10 refs.) - *N. Mize.*

Guy's Hospital
London S.E.1, England

3059 **SAUGSTAD, L.; & FEGERSTEN L.** Increased "reproductive casualty" in heterozygotes for phenylketonuria. *Clinical Genetics*, 4(2):105-114, 1973.

The incidence of reproductive incompetence—including miscarriage, antepartum hemorrhage, preterm birth, and pre- and peri-natal death—was significantly greater ($p<.001$) among a group of 45 Norwegian heterozygotes for phenylketonuria than that observed in a group of controls, consisting of 328 mothers admitted consecutively for delivery at an Oslo hospital in 1967. Overall, less than 40% of pregnancies and deliveries in the heterozygote group were normal, as compared with more than 60% of controls. Serious obstetric complications occurred in more than 20% of heterozygote deliveries and in only 5% of controls. Obstetric histories showed additionally that complications occurred with both PKU and non-PKU offspring in nearly 2/3 of all heterozygotes. (41 refs.) - *N. Mize.*

EEG Laboratories
Oslo 4, Norway

3060 **DANES, B. SHANNON.** Corneal clouding in the genetic mucopolysaccharidoses: A cell culture study. *Clinical Genetics*, 4(1):1-7, 1973.

Variations in the degree of corneal clouding, which is the most common ocular abnormality in the genetic mucopolysaccharidoses, were studied in comparative cell cultures examining the mucopolysaccharide content of corneal and conjunctival fibroblasts and epithelia in 14 patients representing 6 different mucopolysaccharide disorders. With the one exception of Hunter's syndrome, in which corneal clouding did not occur, it was found that where corneal clouding was an early clinical finding, such as in the Hurler and Scheie syndromes, the intracellular mucopolysaccharide content in the cultured fibroblasts was markedly increased relative to that characteristic of the Sanfilippo, Morquio, and Maroteaux-Lamy syndromes, where clouding manifests itself gradually, later in life. In these latter syndromes, cell mucopolysaccharide content was only slightly above normal values. (18 refs.) - *N. Mize.*

3061 **BELTON, N. R.; CROMBIE, J. D.; ROBINS, S. P.; STEPHEN, RHONA; & *FARQUHAR, J. W.** Measurement of phenylalanine in routine care of phenylketonuric children. *Archives of Disease in Childhood*, 48(6):472-475, 1973.

In a comparison study of 4 laboratory methods for routinely measuring phenylalanine levels in PKU children—the Guthrie test, fluorimetry, column chromatography, and paper chromatography—the latter was found to be a simple, safe, and reliable technique for use in hospitals where more sophisticated methods are unavailable. Since phenylalanine blood levels below 2mg/100ml or above 20mg/100ml require diet adjustments, particular attention was paid to accuracy at those levels. Overall, the commonly used Guthrie test tended to underestimate concentrations at low levels and overestimate at higher levels. At the 5 to 10mg/100ml level, however, all 4 methods gave roughly comparable readings. (5 refs.) - *N. Mize.*

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3062 **KHALIL, M.; TANIOS, A.; MOGHAZY, M.; AREF, M. K.; MAHMOUD, S.; & EL LOZY, M.** Serum and red cell folates, and serum vitamin B_{12} in protein calorie malnutrition. *Archives of Disease in Childhood*, 48(5):366-369, 1973.

The results of a comparative study of serum and red cell folates and of serum vitamin B_{12} in infants suffering from protein calorie malnutrition confirm the role of folate deficiency in the pathogenesis of megaloblastosis. Overall assays performed on bone marrow and peripheral blood showed a red cell folate deficiency in 9 of 22 kwashiorkor cases and in 7 of 10 children with marasmus, as compared with values obtained from 16 well-nourished controls. Serum folate deficiency was present in 14 cases of kwashiorkor and in 7 cases of marasmus. No significant differences between groups were found in the level of vitamin B_{12}. (23 refs.) - *N. Mize.*

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3063 **GRUSKIN, ALAN B.; PATEL, MULCHAND S.; LINSHAW, MICHAEL; ETTENGER, ROBERT; HUFF, DALE; & GROVER, WARREN.** Renal function studies and kidney pyruvate carboxylase in subacute necrotizing encephalomyelopathy (Leigh's syndrome). *Pediatric Research*, 7(10):832-841, 1973.

Proximal renal tubular acidosis occurred within the first year of life in 2 infants with subacute necrotizing encephalomyelopathy. Both Ss demonstrated a proximal defect in acidification when given oral bicarbonate. During its infusion, changes in the renal excretion of urate, chloride, phosphate, and lactate were seen in association with expansion of extracellular fluid volume. The fractional excretion of filtered sodium increased as volume expansion occurred, the progressive decrease in sodium reabsorption being associated with a progressive drop in bicarbonate reabsorption. Autopsy revealed a negligible amount of pyruvate carboxylase in the kidney of one patient as compared with controlled values. This very low level was probably a result of the disease process, since hepatic pyruvate carboxylase activity was within the normal range earlier in the disease course, when renal tubular acidosis was detected. Proximal renal tubular acidosis appears to be part of the syndrome complex of lactic acidosis with subacute necrotizing encephalomyelopathy. (39 refs.) - *B. J. Grylack.*

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3064 **RAIHA, NIELS C. R.** Phenylalanine hydroxylase in human liver during development. *Pediatric Research*, 7(1):1-4, 1973.

The phenylalanine hydroxylase activity was investigated in liver from fetuses, neonates, and adult humans, and the capacity for tyrosine formation was evaluated in isolated liver from human fetuses. *In vitro* studies using an excess of reduced pteridine cofactor indicated measurable activity in liver from human fetuses after the eighth week of gestation, with values similar to

those seen in adult control livers reached at approximately 13 weeks. Omission of the pteridine cofactor from the assay system resulted in the finding of very low phenylalanine activity in the fetal livers studied. Irrespective of birthweight and gestational age, livers of neonates studied showed enzyme activity resembling that of the late fetal and adult livers. Low enzyme activity was noted if samples were obtained later than 3 hours after death. The K_m values for phenylalanine hydroxylase of liver from human fetuses was 9×10^{-4} M and for liver from adults, 1×10^{-3} M. The 2 perfused livers from fetuses had a maximum formation of tyrosine 30 minutes after the start of the perfusion equaling 160 and 370 mμmoles tyrosine/min, respectively. The results suggest that the phenylalanine-hydroxylating system is deficient in the premature infant and that tyrosine might be an essential amino acid for the low-birthweight infant. (17 refs.) - *B. J. Grylack.*

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3065 LIE, SVERRE O.; SCHOFIELD, BRIAN H.; TAYLOR, HAROLD A., JR.; & DOTY, STEPHEN G. Structure and function of the lysosomes of human fibroblasts in culture: dependence on medium pH. *Pediatric Research*, 7(1):13-19, 1973.

Study of the influence of changes in extracellular pH on the ultrastructure of cells using normal human fibroblasts in culture has indicated that an increase in pH interferes markedly with lysosomal function and produces a morphologic picture of storage disease in normal cells. The cells increased in size, and a sharp increase in the number of cytoplasmic bodies was observed. One group of cells (type I) had a homogeneous matrix, stained slightly with ruthenium red, was not generally membrane bound, and displayed no acid glycerophosphatase activity. The other group (type II) contained whorls of membranes and an inhomogeneous matrix which was acid phosphatase positive but did not stain with ruthenium red. Type II bodies met the criteria for lysosomal bodies, and some of them could be defined as autophagic vacuoles. (29 refs.) - *B. J. Grylack.*

University Hospital
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3066 CHAIMOVITZ, C.; LEVI, J.; BETTER, O. S.; OSLANDER, L.; & BENDERLI, A. Studies on the site of renal salt loss in a patient with Bartter's syndrome. *Pediatric Research*, 7(2):89-94, 1973.

Utilization of both clearance and diuretic blockage methodologies to study the site of the renal tubular defect in a 5-year-old male with Bartter's syndrome in whom urinary salt was present suggested an underlying defective transport mechanism at the ascending limb of Henle's loop. The finding that the natriuretic effect of chlorothiazide in the patient was comparable to that seen in healthy individuals in whom the sodium load to the distal tubule was increased indicated that the reabsorptive capacity of the thiazide-sensitive portion of the distal nephron was probably unaffected. The marked kaliuresis seen in the patient was due to the large quantity of rejected sodium presented to the distal tubule sodium-potassium exchange site, with hyperaldosteronism possibly further enhancing urinary potassium wastage. Renal salt losing may also account for the vascular unresponsiveness to angiotensin. (21 refs.) - *B. J. Grylack.*

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Los Angeles, California 90048

3067 PERCY, ALAN K.; MILLER, KAREN; & SONNEBORN, MARGUERITE. Confirmatory studies in the prenatal diagnosis of sphingolipidoses. *Pediatric Research*, 7(10):812-817, 1973.

Application of control values established from chemical and biochemical analyses in saline- and nonsaline-aborted fetuses has led to the confirmation of the amniocentesis-derived diagnosis of 2 fetuses with Tay-Sachs disease and 1 with Gm_1-gangliosidosis *type I*. Sphingolipid analyses from brain yielded similar results in each group, with the exception that sulfatide values were lower in the nonsaline group. The specific activities of arylsulfatase A, β-galactosidase, and hexosaminidase A from each tissue were similar, respectively, in saline- and hysterotomy-aborted fetuses; the specific activities of arylsulfatase A were

relatively low in both the saline and nonsaline groups. Fetal values were 10-20% of those from postnatal tissues. An unusual brain β-galactosidase isoenzyme seen in the fetus with Gm_1-gangliosidosis may represent both a tissue and age-specific β-galactosidase. Since hysterotomy abortion may endanger the successful completion of future pregnancy, the use of saline-aborted tissue to confirm amniocentesis-derived diagnosis on analytic and enzymatic grounds may be preferable. (23 refs.) - *B. J. Grylack.*

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3068 **THOMAS, GEORGE H.; TAYLOR, HAROLD A.; REYNOLDS, LINDA W.; & MILLER, CAROL S.** Mucolipidosis III (pseudo-Hurler polydystrophy): multiple lysosomal enzyme abnormalities in serum and cultured fibroblast cells. *Pediatric Research*, 7(9):751-756, 1973.

Study of the lysosomal enzyme activities in serum and fibroblast extracts from 4 mucolipidosis III patients and their comparison with similar findings for a patient with mucolipidosis II (I-cell disease) has indicated marked alterations in some lysosomal enzyme activities in the serum and fibroblast cells of the mucolipidosis III patients which are very similar to those seen in mucolipidosis II. Extracts of cultured fibroblast cells obtained from 3 of 4 mucolipidosis III patients had a multiple enzyme deficiency resembling that seen in mucolipidosis II and showed marked increases in several lysosomal enzymes in serum samples, as is the case in mucolipidosis II. The finding that the increase (7 to 16 times normal) in the serum N-acetyl-β-D-glucosaminidase level was most prominent in the I_2 band (11 to 29 times normal) was also in agreement with mucolipidosis II findings. The decreased activity level of this enzyme in fibroblast extracts was shown to be associated with an abnormal, albeit different, electrophoretic pattern in the 2 disorders. (21 refs.) - *B. J. Grylack.*

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3069 **DIMAURO, SALVATORE; & MELLMAN, WILLIAM J.** Glycogen metabolism of human diploid fibroblast cells in culture. II. Factors influencing glycogen concentration. *Pediatric Research*, 7(9):745-750, 1973.

Examination of the effect of serum, insulin, and cytochalasin B on glycogen resynthesis in human diploid fibroblast cells has demonstrated that cells cultured from human skin biopsies store glycogen in substantial quantity when sufficient glucose is available in the medium of culture. Glycogen utilization allows for the temporary survival of cells in the absence of a hexose source in the medium. Glycogen thus appears to be a significant source of cell nutrition when glucose is absent from the medium. Glycogen concentration is dependent also upon stage of cell multiplication and serum factor or factors. Insulin may not be the only serum factor, since cells depleted of glycogen by omitting both glucose and serum from the medium did not restore glycogen content as well with insulin and glucose as with serum and glucose. Cytochalasin B strongly inhibited glycogen deposition in fibroblasts. (20 refs.) - *B. J. Grylack.*

University of Pennsylvania
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3070 **DIMAURO, SALVATORE; ROWLAND, LEWIS P.; & MELLMAN, WILLIAM J.** Glycogen metabolism of human diploid fibroblast cells in culture. I. Studies of cells from patients with glycogenosis *types II, III,* and *V*. *Pediatric Research*, 7(9):739-744, 1973.

Enzyme assays were performed on fibroblasts from normal Ss and from 5 patients with 3 different forms of glycogen storage disease. Acid maltase deficiency was reflected in the fibroblasts of patients with glycogenosis *type II*, debrancher activity in 2 cell lines from patients with *type III* glycogenosis was lower than control cell lines, and phosphorylase activity, absent in the skeletal muscle of a patient with glycogenesis *type V*, was normal in his fibroblasts. Glycogen accumulated in

fibroblasts from *type II* patients more than in control cells after several days of culture, and fibroblasts from patients with *type III* also accumulated more glycogen than normal cells. Whereas glycogen is mobilized similarly by both mutant cell types when the cells are incubated in glucose-free medium, its mobilization is of particular interest in *type II* cells because of the absence of detectable acid maltase activity in them. (28 refs.) - *B. J. Grylack.*

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3071 BENKE, PAUL J.; HERRICK, NORMA; SMITTEN, LIZABETH; ARADINE, CAROLYN; LAESSIG, RONALD; & WOLCOTT, GEORGE J. Adenine and folic acid in the Lesch-Nyhan syndrome. *Pediatric Research*, 7(9):729-738, 1973.

Treatment of identical twin males with administration of oral adenine, 10 mg/kg/24 hr. to one and folic acid, 15 mg/24 hr., in divided doses to both beginning at 12 hours of age did not prevent the development of the Lesch-Nyhan syndrome, but the twins demonstrated milder central nervous system symptoms than any of their 15 maternal cousins affected with the disease. Folic acid may have been of some therapeutic use, although spasticity and delay in gross motor development are apparent. The adenine dose given to the twins was too low to affect *de nova* purine synthesis significantly. Results of the injection of glycine-1-^{14}C to 2 male maternal cousins of the twins with the Lesch-Nyhan syndrome and almost complete hypoxanthine-guanine phosphoribosyltransferase deficiency followed by administration of oral monosodium glutamate, 4 g/24 hr. to one and folic acid, 40 mg/24 hr., by intramuscular injection to the second beginning 12 hours before a second glycine-1-^{14}C injection and administration of oral adenine, 10 mg/kg/24 hr. to the first and adenine, 40 mg/kg/24 hr. to the second beginning 3 days before a third glycine-1-^{14}C injection showed that low dose adenine slightly delayed the incorporation of glycine-1-^{14}C into uric acid, while 40 mg/kg/24 hr. adenine suppressed accelerated glycine-^{14}C incorporation. Folic acid and monosodium glutamate further stimulated accelerated glycine-^{14}C incorporation into uric acid. (51 refs.) - *B. J. Grylack.*

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3072 LEVIN, B.; OBERHOLZER, V. G.; & PALMER, T. Citrullinemia and an alternative urea cycle. *Pediatric Research*, 7(8):728, 1973. (Letter)

The evidence indicates that high levels of lysine, homocitrulline, and homoarginine in citrullinemia do not necessarily signify an alternative pathway of urea formation. Rather, competitive inhibition may be the underlying mechanism, with high lysine levels in citrullinemia resulting from competitive inhibition of lysine metabolism by citrulline. High levels of homocitrulline and homoarginine, as in persistent hyperlysinemia, and the lysine and homocitrulline levels in a patient with hyperornithinemia might then be explained by alternative utilization of lysine. (8 refs.) - *B. J. Grylack.*

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3073 DOUGLAS, CAROLYN; NOWAK, JUDITH; & DANES, B. SHANNON. Mucopolysaccharides in urine during normal human development. *Pediatric Research*, 7(8):724-727, 1973.

Urinary mucopolysaccharide excretion for 92 normal individuals of both sexes (CA several weeks to 25 years) was evaluated according to the degradation ratio (large molecular weight mucopolysaccharides/fragments) to establish standard values for the normal population and electrophoretic profiles of purified urinary mucopolysaccharides isolated from these Ss. For the urine samples from 83 normal Ss, the degradation ratio averaged 0.42±0.21 (range 0.18-0.75), independent of CA, sex, or puberty. The urinary mucopolysaccharide ratios of 8 patients (CA 6 months

to 9 years) with the Hurler, Hunter, Sanfilippo, or compound Hurler/Scheie syndromes were all above 1. Electrophoretic analysis of urinary concentrates provided a basis for distinguishing normal Ss from patients with various mucopolysaccharide disorders. Electrophoresis indicated that chondroitin sulfate was the major mucopolysaccharide in the urine from normal Ss, while dermatan sulfate and heparan sulfate were predominant in the urine of the Hurler patients. (11 refs.) - *B. J. Grylack.*

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Princeton, New Jersey

3074 **SPECTOR, E. B.; & BLOOM, A. D.** Citrullinemic lymphocytes in long term culture. *Pediatric Research*, 7(8):700-705, 1973.

A citrullinemic lymphocyte line (University of Michigan, Ann Arbor, lymphoid line No. 21) was established for a 33-year-old MR male with a reasonably efficient ammonia removal mechanism, and the behavior of peripheral blood lymphocytes in long-term, continuous culture was examined under *in vitro* conditions. Cells from this line were unable to enter logarithmic growth in medium in which citrulline had been substituted for arginine. They also showed a reduced uptake of labeled ^{14}C-citrulline on autoradiography and a sharply reduced incorporation of labeled citrulline into trichloroacetic acid-precipitable cellular protein. The fact that the cells of a metabolic variant isolated from the lymphoid line showed a heterogeneous labeling pattern but incorporated ^{14}C-citrulline into cellular protein almost as efficiently as the normal lymphocytes suggested normal or almost normal citrulline metabolism in some cells from within this citrullinemic patient. It was more likely, however, that the variant line could be derived from a back mutation or a second *in vivo* cell population. (11 refs.) - *B. J. Grylack.*

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3075 **DAWSON, GLYN; MATALON, REUBEN; & LI, YU-TEH.** Correction of the enzymic defect in cultured fibroblasts from patients with Fabry's disease: treatment with purified α-galactosidase from ficin. *Pediatric Research*, 7(8):684-690, 1973.

Enzyme replacement therapy was initiated in patients with Fabry's disease after fibroblasts cultured from skin biopsies revealed an almost complete deficiency in α-galactosidase activity and accumulated to a four- to sixfold excess of trihexosylceramide as compared with normal fibroblasts grown under the same conditions. Fabry cells previously labeled with U-^{14}C-glucose were treated with a purified α-galactosidase preparation obtained from ficin. Addition of a single unit of the α-galactosidase fibroblasts from 2 patients resulted in only 6% catabolism, but 6 units hydrolyzed 79% of trihexosylceramide in one of the patients and 8 units hydrolyzed 96% in the other patient. It appears that α-galactosidase is incorporated into existing lysosomes in an active form, since stored trihexosylceramide is actually catabolized. Future development of enzyme replacement therapy may depend upon artificial stabilization of the ficin α-galactosidase and the purification of a human α-galactosidase with greater *in vivo* stability (25 refs.) - *B. J. Greylack.*

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3076 **SCHULTE, F. J.; KAISER, H. J.; ENGELBART, S.; BELL, E. F.; CASTELL, R.; & LENARD, H. G.** Sleep patterns in hyperphenylalaninemia: a lesson on serotonin to be learned from phenylketonuria. *Pediatric Research*, 7(6):588-599, 1973.

The distribution of sleep states and the sleep EEG were investigated in 22 infants and children with untreated phenylketonuria (PKU), 22 healthy CA-matched controls, 13 infants and children with PKU under dietary treatment, and 13 CA-matched infants and children selected from the untreated-PKU group. Polygraphic sleep recordings were obtained, and all records were analyzed visually. EEGs were also submitted to computer spectral

analysis. No significant differences were found in the distribution of quiet, active, and undifferentiated sleep between infants with untreated PKU and either the treated or control infants. The obtained results do not support the hypothesis that serotonin regulates the distribution of active versus quiet sleep, and it was suggested that under chronic conditions a normal or almost normal sequence of quiet and active sleep can be maintained despite a severe lack of serotonin. The number of sleep spindles and the bioelectric power in the 12- to 16-cps range were higher in PKU patients than in controls. Although there was little monomorphic activity in these patients, their hypnagogic activity was shifted to higher values ranging from 7 to 11 cps. Four to 6 weeks of dietary treatment did not produce any significant change in sleep spindle activity. (70 refs.) - *B. J. Grylack.*

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3077 **KENYON, KENNETH R.; SENSENBRENNER, JUDITH A.; & WYLLIE, ROBERT G.** Hepatic ultrastructure and histochemistry in mucolipidosis II (I-cell disease). *Pediatric Research*, 7(6):560-568, 1973.

Histochemistry, light microscopy, and electron microscopy demonstrated intracellular vacuoles limited by single membranes and containing either fine fibrillogranular material, membranous lamellae, or lipoid globules to be the most prominent pathologic alteration in the liver of a 25-month-old child with mucolipidosis II (I-cell disease). Vacuolar storage inclusions had distended portal mononuclear cells, sinusoidal Kupffer cells, and granulomatous epithelioid cells. The distinctive involvement of mesenchymally derived cells with relative sparing of epithelially derived hepatocytes and the existence of the epithelioid cell granulomas in association with the storage disorder were unusual aspects of this case. Macrophages overloaded with indigestible storage substances here might be functionally impaired to the extent that susceptibility to low-grade pathogens would result. (37 refs.) - *B. J. Grylack.*

3078 **WILLVONSEDER, ROBERT; GOLDSTEIN, NORMAN P.; MCCALL, JOHN T.; YOSS, ROBERT E.; & TAUXE, W. NEWLON.** A hereditary disorder with dementia, spastic dysarthria, vertical eye movement paresis, gait disturbance, splenomegaly, and abnormal copper metabolism. *Neurology*, 23(10):1039-1049, 1973.

An identical neurologic disorder and laboratory evidence of abnormal copper metabolism that seemed to be distinct from Wilson's disease or hereditary hepatolenticular degeneration (HLD) or other known hereditary disorders were seen in the past in 2 brothers, and comparable findings have been found recently in a third brother. The mother, one sister, and a half brother remain unaffected. The disorder, apparently a genetic one, has an onset in the prepubertal years and continues slowly for many years. Mild intellectual loss, the first clinical manifestation, is followed by dysarthria and clumsiness of gait and of use of the upper extremities and, ultimately, by tremor of the head, trunk, and upper extremities under conditions of emotional stress. Paresis or paralysis of both voluntary and following vertical eye movements with normal horizontal movements, increased muscle stretch reflexes, decreased alternate motion rate, and splenomegaly are also common. The serum ceruloplasmin was reduced in one affected brother, normal in the second, and borderline in the third. Radiocopper studies showed abnormal findings. (19 refs.) - *B. J. Grylack.*

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Rochester, Minnesota 55901

3079 **GUTTLER, F.; & ROSLEFF, F.** Urinary phenylalanine excretion in hyperphenylalaninemic children. *Acta Paediatrica Scandinavica*, 62(4):333-336, 1973.

In a test of the hypothesis that hyperphenylalaninemic patients are phenylketonuric individuals who are protected by their increased urinary excretion of phenylalanine, 24-hour phenylalanine loading tests were performed on 5 children with persistent hyperphenylalaninemia, and the urinary excretion of phenylalanine after loading of these children was compared with the excretion after loading of 8 phenylketonuric children on a low-phenylalanine diet, their parents, and normal individuals. Administration of completely

dissolved L-phenylalanine orally to normal Ss or parents of phenylketonuric Ss was followed by an increase in serum tyrosine. Phenylalanine loading caused no increase in serum tyrosine in phenylketonurics or the 5 children with persistent hyperphenylalaninemia, but serum phenylalanine concentrations returned to preloading levels within 24 hours in hyperphenylalaninemics as contrasted with 14 days in phenylketonurics. The data do not support the original hypothesis. The high urinary tyrosine values seen in phenylketonurics at time zero may be due to the high content of tyrosine in the diet. The reason for such values in hyperphenylalaninemic children is unknown. (9 refs.) - *B. J. Grylack.*

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3080 LINKER, ALFRED. Identification of mucopolysaccharidoses. *Lancet*, 1(7810):1010, 1973. (Letter)

The measurement of urinary excretion of mucopolysaccharides is a reliable diagnostic tool in mucopolysaccharidosis only if carried out with some care. Some of the pitfalls of urine analysis, as pointed out in a recent report, are due to the fact that the polysaccharides excreted are of low molecular weight and of varying sulfate content and can influence the concentration of the urine unless complete precipitation is obtained. Danks and his coworkers seem to suggest that the biochemical method is not valid and that radiological methods of diagnosis should be the criteria for diagnosis. However, excellent studies by Jeufeld *et al.* pinpoint the biochemical defect in most of these disorders; Dank's statement regarding excessive emphasis on the value of detailed studies of the urinary glycosaminoglycans is therefore unacceptable. (4 refs.) - *A. C. Schenker.*

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3081 ROSLER, ARIEL; & RABINOWITZ, DAVID. Magnesium-induced reversal of vitamin-D resistance in hypoparathyroidism. *Lancet*, 1(7807):803-805, 1973.

Response to oral supplements of magnesium in a patient with hypoparathyroidism and severe symptomatic hypocalcemia who did not respond to treatment with vitamin D_2, dihydrotachysterol, and very large calcium supplements is reported. Magnesium levels are often below normal in states of chronic hypoparathyroidism, which appears to be a consequence of reduced gut absorption and excessive urinary loss of magnesium. There was a dramatic change in the patient, a 13-year-old girl, thus treated with 25mEq of magnesium administered orally as a mixture of magnesium citrate and chloride together with 300,000-500,000 units of vitamin D_2. It is suggested that 25-hydroxylation of the vitamin may be magnesium-dependent, and magnesium supplementation may have made possible the biologically active derivatives of vitamin D. (10 refs.) - *A. C. Schenker.*

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3082 FERGUSON-SMITH, M. A.; DUNCAN, DENISE; LOGAN, ROBERT W.; HALL, FRANCES; WUSTEMAN, F. S.; & HARPER, PETER S. Antenatal diagnosis of mucopolysaccharidoses. *Lancet*, 2(7819):45-46, 1973. (Letter)

The analysis of mucopolysaccharides in amniotic fluid as a reliable diagnostic test is discussed. In the carbizole method, used in Glasgow, the glycosaminoglycans were separated qualitatively by electrophoresis on cellulose acetate and stained by alcian blue; when run in barium acetate, an abnormal band, interpreted to be heparan sulphate, was present in excess. The pattern was also abnormal when run in hydrochloric acid. In Cardiff, heparan sulphate was assayed as glucosamine in material bound to Dowex and eluted by NaCl and also by the method specific for free N-sulphated amino groups. All 3 methods revealed an abnormal result when compared to control values. The sample was obtained from a pregnancy terminated at 25 weeks because the parents had a previous child with Sanfilippo syndrome. It is advisable to conduct studies on cultured cells in addition to biochemical analysis, preferably confirmed in other laboratories, in such cases. (2 refs.) - *A. C. Schenker.*

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3083 **MOORE, P. T.; MARTIN, MARIE C.; & COFFEY, VICTORIA P.** Screening for biochemical abnormalities in the urine of the mentally handicapped in Dublin. *Journal of Mental Deficiency Research*, 16(2):128-138, 1972.

A survey on mentally handicapped Ss in the Dublin district was conducted to determine the incidence of inborn errors of metabolism and the families in whom these conditions occur; the objectives were to treat those cases which were amenable to treatment and to advise the families, where pertinent, regarding future births. Aminoacidurias occurred in approximately 6% of the population screened; with the inclusion of glycosuria and mild proteinuria, the percentage of abnormalities rose to 8.8%. There was a 2% incidence of phenylketonuria, 2.1% hyperglycinuria, 1.8% proteinuria, 0.9% cystine-lysine pattern, 0.7% mild generalized aminoaciduria, and 0.5% acid mucopolysaccharides. No case of galactosemia was found. The findings differed from those in Belfast in the incidence of hyperglycinuria, in acid mucopolysaccharides, and in the cystine-lysine patterns. (21 refs.) - *A. C. Schenker.*

St. James's Hospital
Dublin, 8, Eire

3084 **BAIN, A. D.; TATESON, R.; ANDERSON, J. M.; & CUMINGS, J. N.** Sandhoff's disease (GM_2 gangliosidosis, type 2) in a Scottish family. *Journal of Mental Deficiency Research*, 16(2):119-127, 1972.

A Scottish family in which two siblings suffered from Sandhoff's disease (GM_2 gangliosidosis) is reported; the study confirmed that types 1 and 2 of this disease are indistinguishable by clinical or by light microscopic pathological examination. It is pointed out that whereas in Sandhoff's disease both the A and the B forms of the enzyme hexosaminidase are grossly diminished, in Tay-Sachs disease only the A form is missing. The generalized nature of Sandhoff's disease was confirmed at an ultrastructural level by the finding of the membranous concentric and lamellar bodies in liver and spleen. The finding of hexosaminidase levels in the parents that were half those of the controls is in keeping with a recessively inherited disease. A method reported for the quantitative determination of hexosaminidase A in serum or plasma is considered suitable for a screening procedure. (27 refs.) - *A. C. Schenker.*

3085 **OCKERMAN, P. A.; & HULTBERG, B.** Prevalence of aspartylglycosaminuria in Sweden. *Journal of Mental Deficiency Research*, 16(3 and 4):153-159, 1972.

A survey was conducted in Sweden in which urinary samples from 668 children with Hurler's or similar diseases were tested for aspartylglycosaminuria (AGU). The patients had progressive psychomotor retardation, coarse facies, and occasionally skeletal changes and vaculoated lymphocytes. The samples had been collected over a period of 6 years and stored at -20°C; they were assayed with high voltage paper electrophoresis. In 15 of the samples, abnormal findings were observed; 11 of these were from patients treated by ampicillin, 1 patient revealed arginino-succinic aciduria, 2 revealed cystin-lysinuria, and 1 showed hyperglycininuria. There were no AGU-positive samples. Urine from adults treated with ampicillin for various infections showed identical results to those of the children thus treated. AGU is not common in Sweden. (12 refs.) - *A. C. Schenker.*

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S-221 85 Lund, Sweden

3086 **LEE, D. H.** Psychological aspects of galactosaemia. *Journal of Mental Deficiency Research*, 16(3 and 4):173-190, 1972.

The intellectual and emotional status of 60 children with galactosemia from the United Kingdom and Eire, of which 38 were girls and 22 boys, was evaluated. Despite their backgrounds and birthweight, the children were below normal height and weight, and there was a tendency for the smaller children to be less intelligent than the population at large. The children, as a group, were intellectually MR by about 20%, and the girls were more heavily handicapped on most measures than the boys. All methods of analysis used indicated that with increasing age the mental handicap tended to increase. The children showed timidity and poor social relationships; they also had visuomotor disturbances. Most of the children were serious and even grave; coordination difficulties on finer motor tasks (writing, bead-threading) were common. The main clinical impression was that of immaturity: physical, mental, and emotional. (15 refs.) - *A. C. Schenker.*

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Pendlebury, Manchester, England

3087 PRIMROSE, D. A. Mucopolysaccharidosis: a new variant? *Journal of Mental Deficiency Research*, 16(3 and 4):167-172, 1972.

A possibly new variant of mucopolysaccharidosis is described in which the total of urinary acid mucopolysaccharides is well within normal limits, but because of deficiency of chondroitin sulfates, there is relative excess of heparitin sulfate. The patient was a 20-year-old female with bone changes in the ribs, spine, and wrists resembling those in gargoylism, but the skull and hands were not typical and there was no hepatosplenomegaly. The biochemical findings exclude types IV, V, and VI; the normal creatinine phosphokinase (5.9mμ/ml) and electromyographic findings indicated that muscle wasting was secondary to nerve degeneration. The family history suggests a recessive genetic origin. (5 refs.) - *A. C. Schenker.*

The Royal Scottish National Hospital
Larbert, Stirlingshire, Scotland

3088 SYLVESTER, P. E. Spino-cerebellar degeneration, hormonal disorder, hypogonadism, deaf mutism and mental deficiency. *Journal of Mental Deficiency Research*, 16(3 and 4):203-214, 1972.

An anatomical and histological study performed on a female and male siblings with a hormonal disorder which was associated with MR, deaf mutism, ataxia, and hypogonadism is described. The principal pathological findings of both cases were confined to the spiral ganglia, brain stems, dentate nuclei, and tracts in the spinal cords and were distributed symmetrically. There was spino-olivo-dentate degeneration with involvement of the red nuclei, tectum, reticular formation, and cochlear and vestibular pathways. The individual peripheral nerve bundles appeared shrunken, and there was a generalized reduction in the muscle fibre size. The female patient had primary ovarian dysgenesis and the male had incomplete spermatogenesis. The peripheral part of the auditory pathway was found to be completely damaged in both cases, but the secondary auditory pathways (cochlear nuclei) were preserved. The findings, combined with the occurrence of parental consanguinity, suggest a genetically determined condition with an autosomal recessive mode of inheritance. (21 refs.) - *A. C. Schenker.*

St. Lawrence's Hospital
Caterham, Surrey, England

3089 SABATER, J.; VILLALBA, M.; & MAYA, A. Mass screening newborns for mucopolysaccharidoses. *Clinical Genetics*, 4(3):260-263, 1973.

A urinary metachromasia test with toluidine blue was used to screen 15,000 newborns for mucopolysaccharides. The urine specimen is collected on filter paper and inserted in the baby's diaper, the paper is dried, and the sample sent to the laboratory where the staining is done. The urine sample, corresponding to the twentieth day after birth, was positive for the metachromasia test in 103 cases (0.68%). Of these cases, 78 were retested at 3 months; 5 were still positive and remained positive at 6 months. Between 8 and 12 months of age, the Ss were tested with the metachromasia test and cetylpyridinium chloride turbidity test, and determinations of β-galactosidase, α-fucosidase, and arylsulfatase activities were done. It is considered important to establish when the abnormal urinary elimination of mucopolysaccharides begins in this group of diseases, and systematic screening is recommended. (10 refs.) - *A. C. Schenker.*

Instituto de Bioquimica Clinica
calle Roberto Bassas, 1
Barcelona - 14, Spain

3090 AULA, P.; NANTO, V.; LAIPIO, M.-L.; & AUTIO, S. Aspartylglucosaminuria: deficiency of aspartylglucosaminidase in cultured fibroblasts of patients and their heterozygous parents. *Clinical Genetics*, 4(3):297-300, 1973.

The deficiency of N-aspartyl-β-glucosaminidase (AADGase) in cultured fibroblasts from patients with aspartylglucosaminuria (AGU) and decreased enzyme activity in fibroblast cultures from parents of AGU patients is reported. The results with cultured fibroblasts are compatible with the assumption of an autosomal recessive mode of inheritance of AGU. Possibilities of demonstrating AGU *in vitro* have practical and theoretical consequences, such as prenatal diagnosis of AGU. Homozygous patients with AGU are normal at birth and usually show no evidence of the disease during the first year or two of life. The fibroblasts will very likely express the enzyme defect in the newborn period prior to any harmful effects of the altered glycoprotein metabolism on neuronal and other cells. (13 refs.) - *A. C. Schenker.*

3091 **GOODMAN, S. I.; MACE, J. W.; TURNER, B.; & GARRETT, W. J.** Antenatal diagnosis of argininosuccinic aciduria. *Clinical Genetics*, 4(3):236-240, 1973.

The antenatal diagnosis of an argininosuccinase (ASase) deficient fetus, which was established by accumulation of argininosuccinic acid in cultured amniotic cells, is described. Transabdominal amniocentesis was performed at 16 weeks' gestation on a gravida 2 para 1 woman whose previous child had argininosuccinic aciduria. The concentration of all amino acids in the amniotic fluid was normal except for argininosuccinic acid, which was present in the amount of 0.073 micromoles/ml (normally undetectable). There is no doubt that the aborted fetus would have had argininosuccinic aciduria; the hepatic activity of the fetus was only 3% of that present in controls. Measurement of amino acids and/or their metabolites in these fluids may have a place in antenatal diagnosis. (11 refs.) - *A. C. Schenker.*

University of Colorado Medical Center
Denver, Colorado 80220

3092 Nutrition of the pregnant woman. *British Medical Journal*, 2(5861):255, 1973. (Editorial)

Adequate nutrition in pregnancy is discussed. According to one estimate, the running costs of pregnancy increase progressively to about 200kcal/day in late pregnancy and give a cumulative total for the whole of pregnancy of about 26,000kcal. K. Emerson and his colleagues in the Boston study concluded that no increased allowance need be made for maternal physical activity as long as adequate structural protein and other essential nutrients are provided. Women whose intake is not deliberately restricted during pregnancy will gain about 12.5kg, most of the additional 4kg being in depot fat. Under modern conditions, the energy reserve represented in stored maternal fat is seldom needed and is not a cause for obesity, but in conditions of uncertain food economy, where the economy depends on hard physical work by women, an energy reserve could be an important nutritional buffer for the fetus. At present, the best guide to adequate nutrition in pregnancy is the mother's weight gain, and ¾ - 1¼ lbs per week gives excellent clinical results. (5 refs.) - *A. C. Schenker.*

3093 **BUHLER, F. R.; *THIEL, G.; DUBACH, U. C.; ENDERLIN, F.; GLOOR, F.; & THOLEN, H.** Kidney transplantation in Fabry's disease. *British Medical Journal*, 3(5870):28-29, 1973.

The value of renal transplantation in Fabry's disease is illustrated by the description of a patient thus treated. The patient was a 33-year-old man who developed renal failure 4 years following his first admission when the congenital disease was first detected. During the 17 months after transplantation, there was no evidence of progression of the disease, but the patient died shortly after this period during an episode of septic shock. Since renal failure in Fabry's disease is in general life-limiting, renal transplantation may confer an additional benefit in this disease by enhancing ceramide elimination. The total absence of lipid deposits in the renal allograft as documented in this patient suggests that renal transplantation in Fabry's disease may have therapeutic effects. (8 refs.) - *A. C. Schenker.*

*University of Basel
4000 Basel, Switzerland

3094 **SAUGSTAD, I. FEGERSTEN.** The influence of obstetric complications on the clinical picture in classical phenylketonuria. *Clinical Genetics*, 4(2):115-124, 1973.

The degree to which obstetric complications affect later subnormality and the incidence of neurological manifestations in untreated phenylketonurics (PKUs) was examined in 74 PKUs (33 males and 41 females). In this retrospective study, only 22 of the PKUs had been born without obstetric complications. There were twice as many females as males with a normal obstetric history. While more than half the PKUs without obstetric complications had IQs within the debile range, only 23% reached this level when birth was associated with complications, and more than 70% of PKUs with obstetric complications ended as low-grade defectives. Neurological manifestations (salaam seizures, hypsarrhythmia, EEG abnormalities) increased with increasing evidence of obstetric complications. The intellectual and neurological defects in PKUs seem to be related to different degrees of pre-, peri-, and post-natal morbidity, and obstetric complications are responsible for the great variation in the clinical picture of PKU. A

male PKU should be kept on the diet longer than a female PKU without obstetric complications; the latter has a more than 50% chance to attain an IQ in the educable range without treatment. (39 refs.) - *A. C. Schenker.*

EEG Laboratoriet
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Oslo 4, Norway

3095 ZAVALA, C.; COBO, A.; LISKER, R.; & CHAVEZ, Y. Frequency of homocystinuria amongst the blind. *Clinical Genetics*, 4(2):98-100, 1973.

A group of 297 blind people in Mexico City were studied for homocystinuria. Five cases of this anomaly were found, 4 of which gave clearly positive results with the cyanide nitroprusside and silver nitroprusside tests; one was detected only by the latter test. There were 35 samples with false positive reactions in the cyanide nitroprusside test; of these, cysteine was found in 10 specimens and cystine in 3. Of the 22 false positives with silver nitroprusside, cysteine was found in 7 and cystine in 2. The prevalence of homocystinuria in the population examined comes to about 2%, if blindness due to environmental factors is excluded. (11 refs.) - *A. C. Schenker.*

Instituto Nacional de la
Nutricion
Departamento de Genetica
Mexico 22, D. F., Mexico

3096 LINES, D. R.; & SWANSON, MARILYN. Dietary requirement of phenylalanine in infants with hyperphenylalaninaemia. *Archives of Disease in Childhood*, 48(8):648-650, 1973.

Four hyperphenylalaninemic children were studied to discover whether a less restricted diet would be tolerated when their plasma phenylalanine levels were kept at a desirable low value. It was found that these 4 infants who were treated in the first 8 months with low phenylalanine diets could not tolerate more dietary phenylalanine than classical phenylketonuric patients. The study suggested that, when their plasma phenylalanine levels were kept below 10mg/100ml, the patients were not able to handle such intake, whereas they did tolerate a normal intake of phenylalanine much better than those with classical phenylketonuria. Because the danger of brain damage in hyperphenylalaninemia appears remote, such dietary restriction does not appear justified. (7 refs.) - *A. C. Schenker.*

University of Adelaide
Adelaide Children's Hospital
North Adelaide, South Australia

3097 WICK, H.; BACHMANN, R.; BAUMGARTNER, R.; BRECHBUHLER, T.; COLOMBO, J. P.; WIESMANN, U.; MIHATSCH, M. J.; & OHNACKER, H. Variants of citrullinaemia. *Archives of Diseases in Childhood*, 48(8):636-641, 1973.

Two siblings affected with citrullinemia and a third patient with another variety of the disease are described. The disturbance in cases 1 and 2 was not confined to citrulline, as there was also a severe dysaminoacidemia; most amino acid concentrations were higher than normal, but arginine, following the metabolic block, was lower. Microscopic investigations at autopsy revealed that myelin formation was retarded throughout the brains in these 2 cases; in case 1, areas of myelin degeneration were found in the spinal cord, whereas in case 2 degenerative changes were most prominent in the cerebral hemispheres. The liver in case 2 showed diffuse fatty degeneration, whereas in case 1 only the midzonal areas of the liver lobules were involved. Case 3 was a third variant of the disease, defined by high citrulline concentrations in plasma, urine, and CSF; but ammonia concentrations, high in the first two cases, were normal in the third case. The latter followed a normal course and survived. The degree of hyperammonemia appeared to be the main determinant of the course of the disease; raised citrulline levels seem to be harmless so long as the underlying metabolic defect does not lead to toxic ammonia levels. (17 refs.) - *A. C. Schenker.*

University Children's Hospital
CH-4000, Basel 5, Switzerland

3098 EVERED, DAVID; & HALL, R. Treatment of hypothyroidism. *British Medical Journal*, 4(5889):425, 1973. (Letter)

A reply is offered to some points made by Fowler regarding treatment of hypothyroidism in a pub-

lication on this subject. After adequate treatment it was stated that the hypothyroid patients' serum triglycerides were similar to those of controls; Fowler's point that the patients showed higher levels than the controls is countered by the fact that the difference was not statistically significant and hence the statement was not incorrect. Furthermore, the 4 patients in whom the triglyceride level rose after treatment showed levels that were still within the normal range. - *A. C. Schenker.*

Royal Victoria Infirmary
Newcastle upon Tyne, England

3099 **LOW, J. A.; GALBRAITH, R. S.; & BOSTON, R. W.** Maternal urinary estrogen patterns in intrauterine growth retardation. *Obstetrics and Gynecology*, 42(3):325-329, 1973.

An accurate indication of the value of maternal urinary estrogen patterns in the antenatal diagnosis of intrauterine growth retardation was attempted in the case of 486 patients, including 63 with intrauterine growth-retarded infants. Maternal urinary estrogen estimations were done on 24-hour urine collections by rapid assay of total estrin content, and the maternal urinary estrogen index was calculated as the average of the percent of each estimation making up the pattern. There was a significant difference between the mean maternal urinary estrogen index of the intrauterine growth retardation, borderline, and second, third, and fourth quartile groups, a fact which demonstrated the relation between increasing weight-gestational age characteristics and increasing maternal urinary estrogen values. The probability of prediction of intrauterine growth retardation was shown to decrease with the increase of the maternal urinary estrogen index and was of no value when that index exceeded 70%, while it increased as the maternal estrogen index decreased to 30%, when probability was approximately 96%. If the interpretation of this index can be clarified further in selected circumstances and all problems of significant intrauterine growth retardation can be identified accurately, the probability of accurate prediction of intrauterine growth retardation by the index may prove to be even greater than proposed. (15 refs.) - *B. J. Grylack.*

Queen's University
Kingston, Ontario, Canada

3100 **DE BRUYN, C.H.M.M.; OEI, T. L.; GEERDINK, R. A.; & LOMMEN, E.J.P.** An atypical case of hypoxanthine-guanine phosphoribosyltransferase deficiency (Lesch-Nyhan syndrome): II. Genetic studies. *Clinical Genetics*, 4(4):353-359, 1973.

Genetic studies of a patient with hypoxanthine-guanine phosphoribosyltransferase deficiency with mild Lesch-Nyhan syndrome (HG-PRT) were initiated with determination of the HG-PRT deficiency and adenine phosphoribosyltransferase (A-PRT) activities in erythrocytes in the patient and his relatives. The HG-PRT deficiency found in the erythrocytes was verified by autoradiographic examination of lymphocytes isolated from peripheral blood and cultured skin fibroblasts. HG-PRT and A-PRT activities in hair roots of female relatives determined carrier detection. Genetic markers noted included blood groups, serum factors, and red cell enzymes. Results of the studies are consistent with the theory of X-chromosomal mode of inheritance of HG-PRT deficiency. The positive association of A-PRT activity with HG-PRT deficiency and the validity of the hair root method of carrier detection were confirmed. No explanation was found for the relatively mild manifestation of Lesch-Nyhan syndrome symptoms in the patient. (13 refs.) - *C. Wares.*

University of Nijmegen
Nijmegen, The Netherlands

3101 ***GEERDINK, R. A.; DE VRIES, W.H.M.; WILLEMSE, J.; OEI, T. L.; & DE BRUYN, C.H.M.M.** An atypical case of hypoxanthine-guanine phosphoribosyltransferase deficiency (Lesch-Nyhan syndrome): I. Clinical studies. *Clinical Genetics*, 4(4):348-352, 1973.

There is a positive association of the Lesch-Nyhan syndrome with hypoxanthine-guanine phosphoribosyltransferase (HG-PRT) activity deficiency. Psychological studies on a patient without activity of the enzyme HG-PRT with only mild neurological and behavioral abnormalities revealed concealed forms of the Lesch-Nyhan syndrome. The patient had an IQ of 80 and had demonstrated learning problems in school. Aggressive discharges had rarely occurred, although the patient expressed some wishes for self-mutilation and injury. He

also had slight motor disturbances and disturbed concentration. Further biochemical investigation of the different expressions of HG-PRT deficiency is desirable. (15 refs.) - *C. Wares.*

University Hospital
Utrecht, The Netherlands

3102 PALO, J.; SAVOLAINEN, H.; & IIVANAINEN, M. Free amino acids and carbohydrates in the cerebrospinal fluid of 305 mentally retarded patients: a screening study. *Journal of Mental Deficiency Research*, 17(2):139-142, 1973.

Cerebrospinal fluid samples obtained from 305 MR Finnish individuals at pneumoencephalography were examined with one-dimensional amino acid chromatography and thin-layer chromatographic carbohydrate analysis. Eight distinct amino acid bands were seen in almost all instances, the most dominant band being that of glutamine. No specific amino acid anomalies could be diagnosed from the 305 specimens. Glucose was the only carbohydrate observed. There were no abnormalities, and no galactose or fucose was noted. The present material appears to represent the largest collection of cerebrospinal specimens subjected to metabolic screening. Thus, it would seem that the inborn errors of metabolism detectable with this type of screening are few. (9 refs.) - *B. J. Grylack.*

University of Helsinki
Haartmaninkatu 4
SF-00290 Helsinki, Finland

3103 SYLVESTER, P. E. Autoimmune thyroiditis in mental handicap: epidemiological study based on thyroid histology. *Journal of Mental Deficiency Research*, 17(1):18-23, 1973.

A histologic appraisal of the incidence of mild and severe autoimmune thyroiditis was made on the basis of whole thyroid glands dissected at necropsy from 155 MR adults over age 20 and 23 Down's syndrome patients. The overall incidence of autoimmune thyroiditis was 10.1%. The incidence of Down's syndrome females with it was significantly greater than that of the females without it (p between 0.05 and 0.02), while its incidence in the total sample of Down's syndrome versus other patients was significant beyond the 0.001 level of confidence. The incidence of autoimmune thyroiditis, whether mild or severe, was found from the third decade onwards. The overall incidence of the disease in Down's syndrome was 30%. (12 refs.) - *B. J. Grylack.*

St. Lawrence's Hospital
Caterham, Surrey CR3 5YA, England

3104 NEWTH, JEFFREY. Classification of protein-calorie malnutrition. *British Medical Journal*, 1(5855):742, 1973.

Childhood malnutrition observed in Rwanda has generally fallen into 3 distinct groups. Group 1 is composed of children under 1 year old who are not receiving enough breast milk and inadequate supplementary foods. Group 2 are children between 1 and 2.5 years old who receive a normal but inadequate supply of breast milk but have not taken to other appropriate foods. Group 3 consists of children above 2.5 years old who are severely malnourished and edematous. The height of such children is difficult to determine without their cooperation, but their ages can rather easily be determined from family records and statements. Group 3 cases are exceptionally hard to treat. - *C. Wares.*

Hopital de Kigeme
Gikongoro, Rwanda

3105 KAPLAN, SAMUEL D. Hyperparathyroidism and asthma. *Lancet*, 2(7826):447, 1973. (Letter)

Data from the Professional Activity Study, Commission on Professional and Hospital Activities, involving more than 85 million case abstracts, were studied to determine the incidence of asthma in a large series of hyperparathyroidism patients. In the 1,543 hospitals in North America, Puerto Rico, Venezuela, Saudi Arabia, and Australia participating in the Study during 1971, there were 1,700 case abstracts with a diagnosis of hyperparathyroidism, and 5 of these also had asthma. There was a deficit of asthma cases overall and in all but one age group. The results do not support the previous suggestion that the 2 diseases arise more frequently in the same patient than would be expected. (2 refs.) - *B. J. Grylack.*

Commission on Professional and
Hospital Activities
Ann Arbor, Michigan 48105

3106 Nutrition research at Hyderabad. *Lancet*, 2(7824):335, 1973.

The 1972 report of India's National Institute of nutrition (Hyderabad 7, India) records the establishment of a national nutrition monitoring Bureau and summarizes 34 different laboratory studies in progress at the Institute. The Bureau will coordinate the work of the various nutrition units throughout India, and it is hoped that a continuing source of reliable nutritional data will finally be provided. The current research being conducted on pellagra may be the most promising. - *B. J. Grylack.*

3107 BECKERS, R. G.; WAMBERG, E.; *BICKEL, H.; SCHMID-RUTER, E.; FEINGOLD, J.; CAHALANE, S. F.; BOTTINI, E.; JONXIS, J.H.P.; COLOMBO, J. P.; & CARSON, N. Collective results of mass screening for inborn metabolic errors in eight European countries. *Acta Paediatrica Scandinavica*, 62(4):413-416, 1973.

The results of information gathered on newborn screening for inborn errors of metabolism in Europe showed an overall 1:8,000 incidence of classical phenylketonuria, a provisional overall ratio of 1:121,000 for maple syrup urine disease, an incidence of approximately 1:35,000 of galactosemia in the 4 countries performing any galactose testing, and a ratio of 1:12,000 for histidinemia in Western Europe. The finding of persistently elevated methionine blood levels in 6 of 1.7 million newborns screened for homocystinuria must be regarded with great reservation. There was only 1 child with hereditary tyrosinosis in approximately 600,000 tests. Routine screening of newborns is recommended without reservation for phenylketonuria, maple syrup urine disease, galactosemia, and histidinemia, and the Guthrie tests are generally the methods of choice for screening errors of aminoacid and galactose metabolism. For G-6-PD deficiency at least all male newborn babies should be tested in selected regions, the test of Motulsky and Campbell-Kraut being the preferred method. - *B. J. Grylack.*

*Universitats-Kinderklinik
6900 Heidelberg 1
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Republic of Germany

3108 EVANS, PHILIP. Testing for Tay-Sachs carriers. *British Medical Journal*, 3(5876):408, 1973.

Testing for Tay-Sachs carriers is offered at the Hospital for Sick Children, London. The carrier state in Ashkenazi Jews is 10 times as common as in the general population, suggesting the need for initiation of a testing program among Jews. The director of the British Tay- Sachs Foundation offers to visit groups to obtain blood specimens or to test individuals at the hospital by appointment. - *C. Wares.*

Hospital for Sick Children
Great Ormond Street
London WC1, England

3109 FOWLER, P.B.S.; SWALE, J.; ANDREWS, H.; IKRAM, H.; & BANIM, S. O. Grades of hypothyroidism. *British Medical Journal*, 2(5859):178, 1973.

A new classification of the stages of hypothyroidism has been suggested which is only semantically different from a classification system for the stages of thyroid failure proposed earlier. Thyroid stimulating hormone measurements used in the previous system were much lower and safer than those used in the new system. Preclinical hypothyroidism is relatively easy to identify by simple observation of persons and by specific tests for suspected cases. Preclinical hypothyroidism should always be excluded in young women with coronary artery disease. Cytoplasmic antibodies are more important than antibodies to thyroglobulin. (4 refs.) - *C. Wares.*

Charing Cross Hospital
London WC2, England

3110 FARRELL, DONALD F.; BAKER, HENRY J.; HERNDON, ROBERT M.; LINDSEY, J. RUSSELL; & MCKHANN, GUY M. Feline GM_1 gangliosidosis: biochemical and ultrastructural comparisons with the disease in man. *Journal of Neuropathology and Experimental Neurology*, 32(1):1-18, 1973.

Studies of the neurochemical defect and ultrastructural findings in cat GM_1 gangliosidosis are described and certain features of the feline disease

are compared with the disease in humans (Type II GM_1 gangliosidosis). In both species, there is marked accumulation of GM_1 ganglioside in cerebral cortex; total ganglioside content of diseased cat brain was increased about 2.5 times normal, while in the human brain it was only slightly greater. Two peaks of β-galactosidase activity were noted in the kidney of normal cats, at a pH optimum of 3.8 and at pH 5.5; in the diseased cat β-galactosidase activity was seen only at pH 5.5. Reduced activity of only one of 2 β-galactosidases has also been observed in children with Type II GM_1 gangliosidosis. In the human biopsy material, all of the stored material was arranged in round or oval bodies which filled the cortex, but in the cat material involvement was much less extensive. On the whole, the clinical, genetic, morphologic, and biochemical characteristics of GM_1 gangliosidosis of cat and man (Type II) are remarkably similar; differences in enzyme activity probably represent diversity due to species differences or variation due to the extent of disease progression. (25 refs.) - *A. C. Schenker.*

University of Washington School
of Medicine
Seattle, Washington 98105

3111 **RICCIUTI, HENRY N.** Malnutrition and psychological development. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 4, pp. 63-78.

The influence of malnutrition on intellectual development is reviewed. While severe malnutrition (marasmus or kwashiorkor) seems clearly implicated as one determinant of impaired intellectual development, it is difficult to isolate this influence from that of various social, educational, family, and child-rearing conditions associated with malnutrition. Evidence from some studies suggests that malnutrition may exert its major influence on behavior through dysfunctional changes in attention, responsiveness, motivation, and emotionality, rather than through a more direct impairment of basic learning and cognitive competencies. Programs of remediation which provide an enrichment of the child's social and learning environment in day care, school, home, and community settings, together with continuing nutritional and health care, may well reveal that the psychological effects of even severe malnutrition may be corrected or prevented. (42 refs.) - *A. C. Schenker.*

New York State College of
Human Ecology
Cornell University
Ithaca, New York

3112 **MCKHANN, GUY M.; COYLE, PATRICIA K.; & BENJAMINS, JOYCE A.** Nutrition and brain development. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 2, pp. 10-22.

The effects of protein-calorie malnutrition on the developing nervous system in animals are discussed. Nutritional deprivation appears to affect those processes in the developing nervous system which occur at the time of deprivation. A number of studies have indicated that formation of myelin is vulnerable to nutritional deprivation. Nutritional deprivation in the newborn rat results in decreased amounts of sulfatide in rat forebrain during the time of active myelin formation. Arborization of neuronal processes and levels of neuronal transmitter are also affected. In humans, nutritional deprivation in the very young infant and young child is considered to cause irreversible brain alterations in brain weight and cell number (as indicated by DNA). The association of nutritional deprivation with specific mental disorders or behavior anomalies has not been assessed. (29 refs.) - *A. C. Schenker.*

The Johns Hopkins Hospital
Baltimore, Maryland

3113 **BOOTH, C. W.; & NADLER, H. L.** Abnormal mucopolysaccharide (MPS) metabolism in cultivated skin fibroblasts derived from subjects who are heterozygous for Hunter's syndrome. *Journal of Pediatrics*, 83(1):151, 1973. (Abstract)

The defective enzyme in Hunter's syndrome was studied in skin fibroblast cultures by following the release of radioactive sulfate (S^{35}); these were derived from 3 patients with Hunter's syndrome, 3 Ss who were heterozygous for Hunter's syndrome,

and 10 control Ss. Accumulation and release of S^{35} was found to be abnormal in cultures from patients with Hunter's syndrome and in those who were heterozygous for the syndrome when re-established after storage in liquid nitrogen. Artificial heterozygotes, made by mixing Hunter and normal cell lines, demonstrate normal S^{35} uptake after freezing in liquid nitrogen. - *A. C. Schenker.*

3114 **PARKIN, J. M.** Syndrome of growth resistance, obesity, and intellectual impairment with precocious puberty. *Archives of Disease in Childhood*, 48(1):86-87, 1973. (Letter)

A patient similar to one reported by MacMillan and coworkers is described, a 4½-year-old girl with obesity and delay in speech development. The obesity was most marked on the trunk; her facies was normal, but her hands and feet were tiny. A diagnosis of Prader-Willi syndrome was made. The clinical picture and laboratory findings in this patient suggest that some patients with features of this syndrome develop precocious puberty as a result of disturbed hypothalamic function. - *A. C. Schenker.*

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Children's Department
Victoria Road
Newcastle upon Tyne NE1 4LP, England

3115 **GRAHAM, GEORGE G.; BAERTL, JUAN M.; *CORDANO, ANGEL; & MORALES, ENRIQUE.** Lactose-free, medium-chain triglyceride formulas in severe malnutrition. *American Journal of Diseases of Children*, 126(3):330-335, 1973.

A limited number of studies were carried out in severely malnourished infants to compare the utilization of Portagen, a lactose-free formula containing medium-chain triglycerides (MCT) as its major fat component and casein as its nitrogen source, and of Pregestimil, a protein hydrolysate formula with MCT as the major fat component and dextrose as the major carbohydrate. The studies confirmed the expected high nutritional value of casein and the casein hydrolysate in the two formulas. Good results were obtained with Portagen in 4 cases of uncomplicated kwashiorkor and with Pregestimil in an additional case. Results with lactose-containing modified milk have also been good, but in approximately 50% of children with kwashiorkor, decreased lactose tolerance was encountered. Pregestimil was used successfully in 5 infants with severe diarrhea and malnutrition, and in 5 with severe marasmus. None of the children had glucose malabsorption. (12 refs.) - *A. C. Schenker.*

*Mead Johnson Research Center
Evansville, Indiana

3116 **KERPEL-FRONIUS, EDMUND; GACS, GABOR; & HERVEI, CHARLOTTE.** Growth hormone in marasmus due to cerebral disease. *American Journal of Diseases of Children*, 126(3):303-309, 1973.

Growth hormone (GH) levels and growth rates were studied in 2 cases of the diencephalic syndrome during periods of 14 and 23 months. This was part of a study in 13 cases of cerebral disease associated with severe emaciation. The 2 patients exhibited GH levels which were in the acromegalic range on several occasions. In a comparison of the effects of some forms of malnutrition and diencephalic disease on fasting plasma GH levels, only one patient of 19 cases of marasmus due to semistarvation associated with severe cerebral damage or celiac disease exhibited higher fasting values. In this child, severe hypoalbuminemia was also found; hence the higher values must have been caused by a similar mechanism, as in kwashiorkor. High fasting GH levels may be observed in: kwashiorkor; severe symptomatic hypoglycemia in extremely marasmic infants; and diencephalic syndrome with emaciation. Stature in the diencephalic patients was in the normal range on admission but subsequently, with progressive emaciation, growth retardation ensued. Glucose loading did not always suppress the high GH levels; however, a poor plasma insulin response was found both to arginine stimulation and to glucose loading. (23 refs.) - *A. C. Schenker.*

Semmelweis University Medical School
Budapest IX, Tuxolto u 7-9, Hungary

3117 **FEINBERG, S. B.** Normal radiologic findings in treated phenylketonuric children. *Journal of Pediatrics*, 83(1):176-177, 1973. (Letter)

Referring to Berry's comments on roentgenographic findings in phenylketonuria (PKU), the

author points out that the article in question was concerned with amino acid abnormalities and not with diet in regard to protein. Her findings refer to 3 cases of children aged 2½-4½ years, and in these cases, she reported poor mineralization of long bones. Her reference to performance by treated PKU children is based on a very select group of families and patients from which broad generalizations cannot be justifiably made. According to one investigator (S. P. Bessman), the homozygous individual (for any amino acid disorder) is always injured, being unable to "justify" the maternal mixture. (3 refs.) - *A. C. Schenker.*

University of Minnesota
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Minneapolis, Minnesota 55455

3118 **BERRY, HELEN K.** Normal radiographic findings in treated phenylketonuric children. *Journal of Pediatrics*, 83(1):175-176, 1973. (Letter)

The conclusion reached by Feinberg and Fish, that all patients with phenylketonuria (PKU) are subject to radiographic bone changes, regardless of treatment, is questioned. Radiographic assessment, performed on all PKU patients under treatment since 1956, showed bones of normal density. Modeling was normal and bone lengths were in the upper ranges of normal. While overall growth rates were within normal ranges, periods of inconstant growth, particularly in height, were associated with inadequate protein intake as well as with inadequate amounts of phenylalanine in the diets of treated PKU children. According to Berry and associates, measurements of cortical thickness in boys were normal at all ages; in girls, cortical thickness decreased from near the fiftieth percentile at age one year to the fifth percentile by age 6 in states of malnutrition; mean height measurements in treated PKU boys were consistently above the mean for age and for girls were somewhat below the mean from ages 1-4 years. In the radiographic assessment, the intake of protein was an important factor in accounting for height deficits and for decreased cortical thickness. Children with PKU who have been adequately treated from infancy with phenylalanine-restricted diets show intellectual development comparable to that of their parents and unaffected siblings. (10 refs.) - *A. C. Schenker.*

Children's Hospital Research
Foundation
Cincinnati, Ohio 4529

3119 **MAKSIMOVA, S. P.** The organization of population screenings for phenylketonuria in children, and its treatment. *Developmental Medicine and Child Neurology*, 15(1):124-125, 1973. (Abstract)

The screening of children for phenylketonuria in Leningrad is described, as well as the treatment of the affected subjects. The 2,4-dinitrophenylhydrazine test was used in 17,932 babies under 1 year of age; the Folling test was used in children of ages 1 to 3 years (20,200); and 1,161 MR children were tested by both the Folling and the Goldfarb microbiological test. Four cases were diagnosed in each of the first 2 groups which corresponded to an incidence of 1:5,000. Among the MR, 35 cases were detected (3%). Treatment consisted of low protein diet (one-fifth of normal) supplemented by low phenlalanine containing protein hydrolysates. - *A. C. Schenker.*

3120 **BUIST, NEIL R. M.; & JHAVERI, BANOO M.** Risk of fetal damage in maternal phenylketonuria. *Journal of Pediatrics*, 83(3):507, 1973. (Letter)

In reference to Dr. Hansen's statement that not all pregnancies of hyperphenylalaninemic mothers result in brain-damaged children, it is pointed out that at this time we do not know what factors cause brain damage in children and are therefore unable to predict the outcome of the pregnancy with certainty. In the cases summarized by Dr. Hansen, termination of pregnancy in hyperphenylalaninemic mothers would have aborted 12 normal children in order to prevent MR in 10 others. There are, however, several reports in which all the children of affected mothers were severely brain damaged. It is submitted that the treatment of choice in these cases should be judicious, and some form of phenylalanine restricted diet should be administered during pregnancy. - *A. C. Schenker.*

University of Oregon Medical School
Portland, Oregon 97201

3121 **HANSEN, HOLGER.** Risk of fetal damage in maternal phenylketonuria. *Journal of Pediatrics*, 83(3):506-507, 1973. (Letter)

Reference is made to the growing problem of maternal hyperphenylalaninemia. The phenylketonuria (PKU) prevention program yields in-

creasing numbers of mentally normal hyperphenylalaninemic women who may produce MR offspring. It has been shown that in more than 20 families, maternal hyperphenylalaninemia was compatible with the production of normal progeny. Although 75 mothers have been reported to be phenylketonuric, with over 200 offspring ranging from profound MR to above average intelligence, size and nature of the risk of fetal damage remain speculative. Even though the evidence is slanted, this condition in the mother demands the concern of genetic counselors, obstetricians, and pediatricians. Currently, avoidance or termination of pregnancy in all women with elevated blood phenylalanine appears to be the usual recommendation. Ongoing screening of unbiased populations is urged. (11 refs.) - *A. C. Schenker.*

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New York, New York 10032

3122 **SANTINI, RAFAEL; MILLAN, SARA; & SANTIAGO-BORRERO, PEDRO J.** Additional information on congenital defect in absorption of folic acid. *Journal of Pediatrics*, 83(2):345-346, 1973. (Letter)

Additional information is furnished on the congenital isolated defect of folic acid absorption. Following the incubation of 10ml folic acid with 1ml of normal intestinal juice for 2 hours at 37°C, 0.5ml was transferred into a capsule and immediately frozen. The following day a blood-fasting sample was collected from the patient with the defect in folic acid absorption, and the frozen capsule was given to the patient; blood samples were collected one and 2 hours after the ingestion of the folic acid. The serum folate level on the fasting sample was 0.75ng/ml, which level did not change after 1 or 2 hours, showing that no absorption of the folic acid occurred. Thus, the congenital isolated defect of folic acid absorption is not caused by a lack of a factor in the patient's intestinal juice. (1 ref.) - *A. C. Schenker.*

3123 **BENDER, A. E.** Human protein needs. *Lancet*, 2(7828):563, 1973. (Letter)

The disagreement between 2 groups of experts on protein requirements appears to be more apparent than real. The F.A.O./W.H.O. take exception to the statement of the Protein Advisory Group (P.A.G.) that the levels of protein intake recommended by the former committee are inadequate for children in developing countries. The P.A.G. report stressed the fact that extra protein may be lost from the bodies of young children in developing countries during acute infections. Hence, the metabolic losses of tissue protein during acute infections result in significantly increased protein needs during convalescence. - *A. C. Schenker.*

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3124 **SADASIVAN, G.; & RAGHURAM, T. C.** Chromosomal aberrations in malnutrition. *Lancet*, 2(7828):574, 1973. (Letter)

The role of malnutrition in chromosomal changes was investigated in female albino rats (Wistar strain) receiving stock diet. From the day of successful mating, half the animals were fed a low protein diet (9%) and the other half a high protein (23%) diet of mixed vegetables and animal protein. After the birth of the offspring, 6 young ones were allowed to suckle each mother. Chromosomal preparations were made on the twenty-first day. The incidence of chromosomal abnormalities was higher in rats whose mothers had had low protein diets during pregnancy and which continued to receive such diets till the twenty-first day of life. Breaks and deletions were the only abnormalities detected. (4 refs.) - *A. C. Schenker.*

National Institute of Nutrition
Indian Council of Medical Research
Tarnaka, Hyderabad 500007, India

3125 **DREZNER, MARC; *NEELON, FRANCIS A.; & LEBOVITZ, HAROLD E.** Pseudohypoparathyroidism type II: a possible defect in the reception of the cyclic AMP signal. *New England Journal of Medicine*, 289(20):1056-1060, 1973.

Studies on a 22-month-old boy with hypocalcemia and seizures in whom parathyroid hormone elicited an appropriate cyclic adenosine 3'5' monophosphate (cyclic AMP) response but did not appropriately alter renal handling of phosphate are reported. It is proposed that this represents a failure of intracellular reception of the cyclic AMP message; this defect was labeled type II pseudohypoparathyroidism. The serum calcium ranged

between 5.5 and 6.8mg/100ml, with corresponding serum phosphorus values between 5.0 and 5.8mg/100ml. The ionized calcium was 1.3 mEq/liter (normal, 2.4-2.7) with a normal serum albumin concentration (4.1gm/100ml). Administration of oral calcium gluconate (4,500mg/day) failed to change these values. Two determinations of urinary cyclic AMP excretion were high, of a magnitude usually attained only in hyperparathyroid states. Serum parathyroid hormone concentration was elevated (18 microliter-equivalents/ml); the response to parathyroid hormone infusion was a prompt and dramatic rise in cyclic AMP excretion, with a return to baseline in 2 hours. The defect in this patient lies in an inability to respond to the intracellular cyclic AMP signal. (39 refs.) - *A. C. Schenker.*

*Duke University Medical Center
Durham, North Carolina 27710

3126 **CARMODY, PATRICK J.; RATTAZZI, MARIO C.; & DAVIDSON, RONALD G.** Tay-Sachs disease—the use of tears for the detection of heterozygotes. *New England Journal of Medicine*, 289(20):1072-1074, 1973.

Heterozygotes for Tay-Sachs disease can be detected by analyzing tears for hexosaminidase isozymes by a direct electrophoretic quantitative method or an adaptation of the serum heat inactivation test. The Ss comprised 15 obligate heterozygotes (parents of patients with Tay-Sachs disease), 7 normal pregnant women, and 15 presumably normal persons. When tears and leukocyte extracts from persons heterozygous for Tay-Sachs and from normal persons were compared with the use of the quantitative electrophoretic method, it was found that, as in leukocytes, the hexosaminidase A activity in tears was reduced as distinguished from that in normal persons' tears. The heat inactivation method produced results which clearly separated carriers and noncarriers. In contrast to serum, tears from pregnant women demonstrated normal hexosaminidase A to hexosaminidase B ratios in the heat inactivation assay. Serum from normal pregnant and nonpregnant women could be distinguished by the increase in hexosaminidase B activity in the pregnant women. (11 refs.) - *A. C. Schenker.*

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Buffalo, New York 14222

3127 **PITT, DAVID; MCFARLANE, JEAN; FRANCIS, IVAN; GAHA, T. J.; HILL, GEOFFREY; CROTTY, J. M.; MASTERS, PETER; & CUSICK, EDWARD.** Phenylketonuria testing in Australia: sex ratio. *Medical Journal of Australia*, 1(4):170-171, 1973.

Phenylketonuria testing by the Guthrie method resulted in an excess of male patients (43 male to 26 female) in Australia; this difference was significant at the 0.04 level. In Australia, babies are tested soon after the fourth or fifth day of life and prematures on about the tenth day. The case for suggesting a slower phenylalanine rise in girls is therefore a little weaker than in the USA, where testing is done earlier. In addition, there is an apparent variation in incidence between the various States of Australia. There is no explanation for this phenomenon on the basis of race. (8 refs.) - *A. C. Schenker.*

Children's Cottages
Box 114, P.O. Kew
Victoria 3101, Australia

3128 **NAVON, R.; MARK, Z.; MASHIAH, S.; & PADEH, B.** Determination of Tay-Sachs genotypes in pregnant women. *Clinical Genetics*, 4(3):286-287, 1973.

Data are presented which indicate that a serious defect is possible when serum is used for the detection of Tay-Sachs disease (TSD). It is known that infants affected with TSD lack component A of hexosaminidase, whereas both A and B components of this enzyme are present in normal individuals. In obligate heterozygotes for TSD intermediate deficiency of component A has been demonstrated in serum, peripheral leukocytes, and urine. The activity of hexosaminidase A was tested in serum and leukocytes of 13 non-Ashkenazi Jewish pregnant women, and in 9 known obligate heterozygous pregnant women. It was found that levels of hexosaminidase A in the serum of the pregnant controls overlapped those of the heterozygotes, while the levels in leukocytes were not affected by pregnancy. Hence, the leukocyte can be used to differentiate homozygous normal from heterozygous women, regardless of whether or not they are pregnant. (6 refs.) - *A. C. Schenker.*

Cytogenetics Institute
Chaim Sheba Medical Center
Tel-Hashomer Hospital, Israel

3129 **KHOURI, F. P.; & MCLAREN, D. S.** Cytogenetic studies in protein-calorie malnutrition. *American Journal of Human Genetics*, 25(5):465-470, 1973.

Cytogenetic studies were conducted in a sample of Arab children (n = 17) with malnutrition, between 3 and 10 months of age and in 10 normal infants of similar age. Statistical analysis of the data obtained showed significantly different variances of the two populations ($P<.01$), the higher incidence of structural chromosome abnormalities being found in the patient group. However, no correlation was found between the degree of malnutrition and the incidence of chromosomal lesions. It was not possible to exclude the effects of some associated mutagenic agents such as viral infections, to which malnourished children are particularly prone. (13 refs.) - *A. C. Schenker.*

American University Hospital
Beirut, Lebanon

3130 **PELTON, E. WILLIAMS; & *BASS, NORMAN H.** Adverse effects of excess thyroid hormone on the maturation of rat cerebrum. *Archives of Neurology*, 29(3):145-150, 1973.

Therapeutic attempts were made to replace thyroxine between 10 and 50 days of postnatal life in rats rendered athyrotic at birth, in order to study brain maturation under these conditions. A single injection of 200 microcuries of carrier-free ^{131}I caused selective destruction of the thyroid gland in the newborn rat. Hormonal replacement was begun at 10 postnatal days with the result that the body weight (previously only 40% of normal) was successfully restored to 80% of normal by 50 days of age. The characteristic "cretinoid" features in the young adult rat disappeared, and the animals appeared to be rehabilitated somatically. However, the somatosensory area of cortex showed chemical abnormalities identical to those found in the untreated hypothyroid rat. Marked decreases of DNA (in both cortex and white matter) and lowered amounts of myelin components suggested that hormonal replacement was ineffective in normalizing the migration and differentiation of glial cells from the subependymal zone. The failure of hormonal replacement therapy in the cretin rat can be ascribed both to the delayed onset of treatment and to a direct toxic effect of the hormone on the developing brain when delivered in amounts exceeding physiologic requirements. (40 refs.) - *A. C. Schenker.*

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3131 **KNUDSON, ALFRED G., JR.** Founder effect in Tay-Sachs disease. *American Journal of Human Genetics*, 25(1):108, 1973. (Letter)

Attributing the high incidence of Tay-Sachs disease among Ashkenazic Jews to the founder effect is probably incorrect. A more likely cause is heterozygote selection, which, throughout history, may be expected to affect physiologically related genes. Similar high frequencies of Gaucher's disease and Niemann-Pick disease among Ashkenazic Jews, both of which, like Tay-Sachs, are associated with disorders of the sphingolipid metabolism, further favor this hypothesis. (4 refs.) - *N. Mize.*

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Houston, Texas 77025

3132 **BEUTLER, E.; GUINTO, E.; & KUHL, W.** Variability of α-Galactosidase A and B in different tissues of man. *American Journal of Human Genetics*, 25(1):42-46, 1973.

Electrophoretic examination of human tissues removed at autopsy showed α-galactosidase A from different tissues to have differing mobilities. Following treatment with *Clostridium perfringens* neuraminidase, the electrophoretic mobility of extracts from fibroblasts, white blood cells, placenta, liver, heart, skeletal muscle, kidney, and spleen was markedly altered. Partial purification procedures showed the thermolabile enzyme α-galactosidase A had been affected by the neuraminidase treatment. The thermostable enzyme α-galactosidase B, on the other hand, was not so affected, suggesting that the B enzyme does not simply represent an A form devoid of neuraminic acid. (7 refs.) - *N. Mize.*

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3133 **BRADY, ROSCOE O.; & TALLMAN, JOHN F.** Absence of cross-reactive antigen in Fabry's disease. *New England Journal of Medicine*, 289(13):695, 1973. (Letter)

In response to Beutler and Kuhl regarding the lack of cross-reacting protein to the α-galactosidase A in fibroblasts from patients with Fabry's disease, the results must be interpreted with caution. These investigators have not shown that their α-galactosidase is active with ceramidetrihexoside; evidence offered in support of this contention is taken from a study with a liver preparation. The method used for detecting cross-reacting material is indirect, and the results must be considered preliminary and await confirmation by different immunologic procedures and in other families with Fabry's disease. The rapid clearance of the soluble placental ceramidetrihexosidase may militate against its being a potent antigen and make it possible to replace this enzyme over extended periods in patients with Fabry's disease. (3 refs.) - *A. C. Schenker.*

National Institutes of Health
Bethesda, Maryland

3134 **BEUTLER, ERNEST; & KUHL, WANDA.** Absence of cross-reactive antigen in Fabry's disease. *New England Journal of Medicine*, 289(13):694-695, 1973. (Letter)

Brady *et al.* raise the question of whether a purified protein from human placenta would be antigenic in connection with Fabry's disease; evidence is provided that patients with Fabry's disease do not produce a protein antigenically similar to α-galactosidase A. The hypothesis that a cross-reacting antigenic material is present was tested by linking the antibodies covalently to cyanogen bromide activated sepharose; these antibody-sepharose beads were found to bind partially purified fibroblast α-galactosidase A. When such beads were exposed to normal fibroblast extracts, their capacity to bind partially purified enzyme was markedly reduced. When the beads were treated with extracts of fibroblasts from 2 unrelated patients with Fabry's disease, the capacity to bind α-galactosidase A was unimpaired. The studies indicate that in the 2 families studied, no cross-reacting protein was present. Human tissues contain 2 genetically and biochemically distinct enzymes with α-galactosidase activity; it is important to distinguish between α galactosidase A and B. (5 refs.) - *A. C. Schenker.*

3135 **ROUDEBUSH, CORBIN P.; FOERSTER, JAMES M.; & *BING, OSCAR H. L.** The abbreviated PR interval of Fabry's disease. *New England Journal of Medicine*, 289(7):357-358, 1973.

Electrocardiograms (ECGs) were followed in 3 brothers with Fabry's disease who demonstrated an abbreviated PR interval; cardiologic abnormalities in this disease are briefly reviewed. In a review of 120 cases from the literature, ECGs were reported in only 47 cases, 27 of which gave evidence of abnormality. The most frequently reported change was left ventricular enlargement; supraventricular arrhythmias were also common. In the tracings published, 3 of the 4 revealed abbreviated PR intervals in the range of 0.12-0.13 sec. The distribution of gal-gal-glu ceramide in the conduction system of patients with Fabry's disease has not been defined. It is possible that glycolipid could alter decremental conduction. (12 refs.) - *A. C. Schenker.*

*Boston City Hospital
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3136 **BRADY, ROSCOE O.; TALLMAN, JOHN F.; JOHNSON, WILLIAM G.; GAL, ANDREW E.; LEAHY, WILLIAM R.; QUIRK, JANE M.; & DEKABAN, ANATOLE S.** Replacement therapy for inherited enzyme deficiency: use of purified ceramidetrihexosidase in Fabry's disease. *New England Journal of Medicine*, 289(1):9-14, 1973.

The effect of i.v. infusion of ceramidetrihexosidase on the level of circulating ceramidetrihexoside in 2 patients with Fabry's disease is reported, and the results are compared with those obtained by infusion of plasma and a plasma preparation enriched with platelets and leukocytes into one of the recipients of purified enzyme. The infusion of the purified ceramidetrihexosidase caused a substantial reduction in the elevated level of circulating ceramidetrihexoside and produced a salutary effect in both patients; in one patient the level decreased from 53 to 22nmoles/10ml plasma and in the other it decreased from 67 to 45nmoles/10ml plasma, in spite of receiving 2/5 less of the enzyme. The enzymatic activity following infusion with fresh plasma compared closely with that of the purified enzyme, but there was no change in circulating ceramidetrihexoside. The administra-

tion of leukocytes and platelets suspended in plasma had a more discernible effect, both in ceramidetrihexosidase activity and in circulating α-galactosidase. Replacement therapy with purified human enzyme seems to be the preferable approach to the treatment of Fabry's disease. (30 refs.) - *A. C. Schenker.*

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Bethesda, Maryland 20014

3137 **RICHARDSON, STEPHEN A.; BIRCH, HERBERT G; & HERTZIG, MARGARET E.** School performance of children who were severely malnourished in infancy. *American Journal of Mental Deficiency*, 77(5):623-632, 1973.

School performance was examined in Jamaican children who had been severely malnourished in the first 2 years of life, and the question as to whether school performance was related to the age at which severe malnutrition occurred in such children was investigated. The Ss, comprising 62 boys who had been treated for severe malnutrition, reflected syndromes of marasmus, kwashiorkor, or marasmic-kwashiorkor. For comparison, the analysis included 31 sibling cases and 68 comparison cases. The children with severe malnutrition during their first 2 years of life performed at lower levels than their classmates on formal tests of reading, spelling, and arithmetic; evaluations according to teacher rating were also shown to be considerably lower. Siblings of these children also tended to perform at a lower level than their classmates in formal subjects, but were equal to their classmates in the teachers' evaluation. Because certain intellectual functions are influenced in different degrees by social and biological factors and because the comparison children were not necessarily normal, the results are not decisive. The data do not provide evidence for more severe intellectual impairment caused by malnutrition at an earlier age than at a later age. (16 refs.) - *A. C. Schenker.*

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Bronx, New York 10461

3138 **LENN, NICHOLAS J.; & DAWSON, GLYN.** On the significance of curvilinear bodies in late infantile lipidosis. *American Journal of Mental Deficiency*, 77(5):597-606, 1973.

Details on 5 cases of late infantile lipidosis are presented, including 2 families with confirmed occurrence in siblings. A striking morphological finding was that of the uniform occurrence of curvilinear bodies in the cortical specimens; moreover, these are identical to the storage material seen in the light microscopic preparations. Analysis of the fatty acid composition of various lipid classes did not reveal any marked abnormalities which could be a result of polymerization. This supports the separation of cases with late infantile onset and curvilinear body accumulation from the broader group of lipidoses. Evidence suggests that lipidosis is due to deficiency of an enzyme responsible for lipid metabolism. The curvilinear body appears to characterize the major late infantile cerebral lipidoses, providing a reliable criterion by which future biochemical studies can be guided. (23 refs.) - *A. C. Schenker.*

University of Chicago
Chicago, Illinois 60637

3139 **ROSNER, FRED.** Screening for genetic disease. *New England Journal of Medicine*, 289(4):221, 1973. (Letter)

The elimination of Tay-Sachs amaurotic familial idiocy is considered only wishful thinking at present. Tay-Sachs disease cannot be compared with acute anterior poliomyelitis, since they are of different etiologies. If the author (*N. Engl. J. Med.*, 288:1188, 1973) wishes to imply that screening programs to detect the carrier state of Tay-Sachs disease might induce Jewish parents with the trait to restrict childbearing, such an implication might be considered, in the extreme, to represent nothing short of genocide. The genetic counselor must only advise, not dictate; indiscriminate screening can be hazardous if not combined with educational programs for lay and professional groups. One must be careful to avoid stigmatization and breaches of individual rights to privacy. (2 refs.) - *A. C. Schenker.*

Queens Hospital Center
Jamaica, New York

3140 **CLARKE, J.T.R.; GUTTMAN, R. D.; BEAUDOIN, J. G.; MOREHOUSE, D. D.; & WOLFE, L. S.** Kidney transplantation in Fabry's disease. *New England Journal of Medicine*, 289(5):270-271, 1973. (Letter)

In answer to Dr. Philippart and his colleagues'

analysis of the renal transplantation case described, it is pointed out that it was during the infection that the plasma trihexosylceramide (CTH) levels were lowest. Moreover, during the entire postoperative period, when renal function was improving, as reflected by declining serum creatinine levels, the plasma CTH levels rose. It appears then that if there is any correlation between renal function and CTH catabolism, it is a negative one. The orcinol method was used only to determine the total glycolipid hexose in the kidney tissue itself; the plasma glycolipid levels were monitored by the gas-liquid chromatographic technic. In spite of the demonstration that a variety of tissues are capable of synthesizing CTH, the majority of the CTH in plasma is probably derived from red-cell destruction. The skin fibroblasts and the kidney are not normally involved in red-cell destruction, that being the role of the spleen. (3 refs.) - *A. C. Schenker.*

University of Calgary
Calgary, Alberta, Canada

3141 **PHILIPPART, MICHEL; FRANKLIN, STANLEY S.; LEEBER, DONALD A.; HULL, ALAN R.; & PETERS, PAUL C.** Kidney transplantation in Fabry's disease. *New England Journal of Medicine*, 289(5):270, 1973. (Letter)

In reference to the paper by Clarke *et al.* citing the failure of renal transplantation in a case of Fabry's disease, this short-term observation is not a suitable test of the efficacy of the graft in reversing the inborn error of metabolism. Since the patient was much older than those reported by the undersigned, the degree of irreversible damage to the blood vessels was likely to be much greater. In addition to factors such as tissue matching and the immunosuppressive regimen, the value of the orcinol method for an accurate and reproducible determination of plasma glycolipids is questionable. The gas chromatographic method is much more informative and reliable. The role of an increased level of globoside in the regulation of trihexoside levels is not substantiated by any enzymic determinations and neglects the fact that skin fibroblasts are capable of synthesizing ceramide trihexoside. (7 refs.) - *A. C. Schenker.*

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Los Angeles, California

3142 **FRANKENBURG, WILLIAM K.; GOLDSTEIN, ARNOLD D.; & OLSON, CONNIE O.** Behavioral consequences of increased phenylalanine intake by phenylketonuric children: a pilot study describing a methodology. *American Journal of Mental Deficiency*, 77(5):524-532, 1973.

A method for studying the behavioral consequences of phenylalanine on phenylketonuric (PKU) children is described and some findings of behavioral correlates are presented in 7 Ss. The children were 4-5 years of age with IQs ranging between 35 and 131. During the study, the children were maintained on a low phenylalanine dietary regimen, the serum being evaluated for phenylalanine 2-3 times weekly and behavioral changes assessed by the mother and/or clinical observer. A standard daily dose of L-phenylalanine was added to the children's diet at different times on a double-blind basis. Following the study, the parents of 6 of the Ss were told to terminate the low phenylalanine diet and to feed their children a normal diet; follow-up observations were obtained at regular intervals. Most of the Ss manifested signs of lethargy and irritatility initially as the serum phenylalanine levels were raised, but these changes disappeared within a week or two and termination of the study yielded physiological and behavioral responses similar to those observed during the study. The most severe behavioral changes were seen in the most retarded child. (11 refs.) - *A. C. Schenker.*

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3143 **PERRY, THOMAS L.; HANSEN, SHIRLEY; TISCHLER, BLUMA; RICHARDS, FRANCES M.; & SOKOL, MARLENE.** Unrecognized adult phenylketonuria: implications for obstetrics and psychiatry. *New England Journal of Medicine*, 289(8):395-398, 1973.

Four adult siblings with previously unrecognized phenylketonuria (PKU) are described to demonstrate some complications of this disorder relevant to obstetrics and psychiatry. Of these siblings, 3 had normal intelligence. The fact that a patient with untreated PKU has escaped serious mental defect in childhood may not guarantee that other manifestations of cerebral malfunction will not

appear in later life. Three PKU women in the sibship gave birth to 9 non-PKU children, all of whom had varying degrees of intellectual deficit; 2 of the adults with PKU have suffered major psychotic illnesses. It is recommended that: a ferric chloride screening test be performed on every woman early in her first pregnancy; every woman with PKU or hyperphenylalaninemia should be discouraged from becoming pregnant; in case she does so, she should be treated appropriately and special diet given to the infant; unrecognized PKU should be looked for in mothers of school children with unexplained learning disorders; and the ferric chloride test should be performed on all psychotic patients admitted to mental hospitals. The present practice of discontinuing the low phenylalanine diet at the age of 6 or 7 in girls with PKU should be reconsidered, in view of the above. (7 refs.) - *A. C. Schenker.*

University of British Columbia
Vancouver 8, Canada

3144 **FILER, L. J., JR; & STEGINK, LEWIS D.** Safety of hydrolysates in parenteral nutrition. *New England Journal of Medicine*, 289(8):426-427, 1973.

An article by Olney *et al.* questions the safety of protein hydrolysates for use as the nitrogen source in total parenteral nutrition of the human infant. The authors report the production of a central-nervous-system (CNS) lesion in the infant mouse after s.c. injection of solutions containing glutamate, aspartate, and cysteic acid. These neurotoxic effects vary in different species; although the authors have reported that the arcuate nucleus of the infant subhuman primate is damaged by high doses of glutamate, such findings have not been confirmed. One index that can be measured objectively is the rise in plasma glutamate and aspartate levels after administration of glutamate, aspartate, or protein hydrolysates. Generally, pediatric patients receiving parenteral nutrition are infused with solutions containing 2-2.5% protein hydrolysate and 25% glucose at flow rates of 120-150mg/kg body weight/24 hrs. Infants infused with a casein-hydrolysate-based preparation receive the equivalent of 0.01mg/gm body weight/hr of glutamate plus aspartate; this level is readily metabolized. It is difficult to imagine glutamate-induced CNS damage on the basis of the observations reported. (7 refs.) - *A. C. Schenker.*

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3145 **BENKE, PAUL J.; HERBERT, ANNETTE; & HERRICK, NORMA.** In vitro effects of magnesium ions on mutant cells from patients with the Lesch-Nyhan syndrome. *New England Journal of Medicine*, 289(9):446-450, 1973.

Findings are described which suggest that magnesium ions increase the activity of human mutant hypoxanthine-guanine phosphoribosyltransferase (H-G PRT) enzymes and alter several properties of Lesch-Nyhan cells in culture. Skin fibroblasts were cultured from patients with the Lesch-Nyhan syndrome from 7 families. Growth studies, enzyme assays, and magnesium kinetic studies were conducted. Magnesium ions were found to decrease the resistance of Lesch-Nyhan cells to the effects of 8-azaguanine, presumably by increasing the mutant H-G PRT conversion to 8-azaguanine ribonucleotide, and to increase the growth of Lesch-Nyhan fibroblasts in F4 medium, presumably by increasing the mutant H-G PRT conversion of hypoxanthine to inosine monophosphate. It is possible that differences in magnesium ion stores in affected patients explain the variation in clinical expression occasionally seen within one family. Metal ion activation of genetically mutant enzymes may be important in several metabolic defects in man. (34 refs.) - *A. C. Schenker.*

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Miami, Florida 33152

3146 **DACREMONT, G.; KINT, J. A.; & COCQUIT, G.** Niemann-Pick disease. *New England Journal of Medicine*, 289(11):592, 1973. (Letter)

The diagnostic value of the sphingomeylin excretion was investigated in 2 patients with Niemann-Pick disease as compared to a large number of controls. Both cases were diagnosed by phospholipid analysis of a liver biopsy showing an increase of 10-15 times in sphingomyelin and markedly increased levels of cholesterol and bis-(monoacyl glycerol)-phosphate. In 1 case the diagnosis was confirmed by sphingomyelinase assay. A definitely increased urinary excretion of sphingomeylin (990-1550 nmoles /100 ml, as compared to normal excretion of 80-320 nmoles/100 ml) was shown in the patients with Niemann-Pick disease. The patients in whom these results were found belong to types A and B of the disease. (2 refs.) - *A. C Schenker.*

3147 **LOCKMAN, LAWRENCE A.; HUNNINGHAKE, DONALD B.; KRIVIT, WILLIAM; & DESNICK, ROBERT J.** Relief of pain of Fabry's disease by diphenylhydantoin. *Neurology*, 23(8):871-875, 1973.

The most debilitating aspect of Fabry's disease is the associated pain. In a small test group (8) with the diagnosis of Fabry's disease and chronic acroparesthesias, observations were made of relief obtained with treatment of diphenylhydantoin (DPH), aspirin, or multivitamins in a double-blind crossover controlled study. The pain associated with Fabry's disease was eliminated with plasma concentrations of >4 μg/ml DPH. Prevention or amelioration of other classical Fabry crises by the use of DPH was not evaluated. Additional controlled clinical studies of DPH for pain relief in other diseases with chronic acroparesthesias will be required. (19 refs.) - *C. Wares.*

University of Minnesota Medical School
Minneapolis, Minnesota

3148 **LENN, NICHOLAS J.** Lactosylceramidosis: Light and electron microscopic observations. *Neurology*, 23(8):791-797, 1973.

Accumulation of lactosylceramide is the result of galoctosyl hydrolase deficiency, the converging products of both globoside and ganglioside metabolism. Light and electron microscopic observations from a cerebral biopsy and from a postmortem brain specimen from a case of late infantile neurovisceral storage disease diagnosed as lactosylceramidosis showed the neurons to be primarily involved with ballooning of perikarya and proximal dendrites in widespread portions of the nervous system. Accumulation of large numbers of abnormal pleomorphic cytosomes morphologically distinct from bodies usually associated with infantile lipidoses was observed. Suspicion of lactosylceramidosis in future cases may be confirmed by a combination of incidence of clinical symptoms, morphologic features, and specific biochemical studies. (17 refs.) - *C. Wares.*

The University of Chicago Hospitals
Chicago, Illinois 60637

3149 **WARKANY, JOSEPH; & PETERING, HAROLD G.** Congenital malformations of the brain produced by short zinc deficiencies in rats. *American Journal of Mental Deficiency*, 77(5):645-653, 1973.

The production of congenital malformations in rats by means of short depletion periods of zinc in the diet of the mothers is described. Among the malformations induced by 6-day zinc deficiency in 37 pregnant rats were: exencephalies, hydrocephalies, cleft lip and palate, as well as ocular and skeletal malformations. The young of mothers fed the zinc-deficient diet are reduced in weight according to the duration of the maternal deficiency. The teratologic effects vary, demonstrating that many accessory factors contribute to specific malformations which result from methods that interfere with the proper development of the embryo. The experiments do not show that zinc deficiency is a cause of human malformation or MR, but they point to another avenue to explore in human development. (12 refs.) - *A. C. Schenker.*

Children's Hospital Research Foundation
Cincinnati, Ohio 45229

MEDICAL ASPECTS – Etiologic Groupings
Postnatal growths and gross brain disease

3150 **WATANABE, ITARU; PATEL, VIMALKUMAR; GOEBEL, HANS H.; SIAKOTOS, ARISTOTLE N.; ZEMAN, WOLFGANG; DE MEYER, WILLIAM; & DYER, JANE SCHRODER.** Early lesion of Pelizaeus-Merzbacher disease: electron microscopic and biochemical study. *Journal of Neuropathology and Experimental Neurology*, 32(2):313-333, 1973.

An electron microscopic and biochemical study of a biopsy of cerebrum of a 3-month-old male infant with clinically and genetically typical Pelizaeus-Merzbacher disease is presented. The child is a member of a family with 23 ascertained cases of Pelizaeus-Merzbacher disease. In addition to a normal distribution and arrangement of myelin sheaths, the morphological examination revealed the presence of spherical lamellated vacuoles in the

oligodendrocytic perikarya; numerous myelin balls at the periphery of the oligodendrocytes; and some macrophages containing nonspecific lipid bodies. Although the acid hydrolases were somewhat high, they were within normal range, as were cathespin D and esterase. Cerebrosides and sulfatides, as expressed in percent of total lipids, were 1.084 (control 1.242) and 0.569 (control 0.621), respectively. The results are compared with those of a previous case. (39 refs.) - *A. C. Schenker.*

Veterans Administration Hospital
Kansas City, Missouri

3151 **KUMAR, BHARAT B.** Watson's syndrome. *American Journal of Diseases of Children*, 123(6):612, 1972. (Letter)

It is proposed that the designation "Watson's syndrome" be applied to those cases of familial neurofibromatosis exhibiting pulmonary stenosis, cafe-au-lait spots, and MR, in honor of the physician who first identified this constellation. (1 ref.) - *N. Mize.*

3152 **VAN DER HAGEN, C. B.; BORRESEN, ANNE-LISE; MOLNE, K.; OFTEDAL, G.; BJORO, K.; & BERG, K.** Metachromatic leukodystrophy. 1. Prenatal detection of arylsulphatase A deficiency. *Clinical Genetics*, 4(3):256-259, 1973.

Arylsulphatase A (ARA) determinations performed on cultured amniotic fluid cells proved an accurate indicator of metachromatic leukodystrophy in the fetus. The woman involved had previously given birth to 2 sons afflicted with MLD, both of whom had died before the age of 5 yrs. In two subsequent pregnancies, amniocentesis was performed at 16 weeks gestation, and the ARA activity of the cultured cells was found to be significantly lower than that of cultured cells from 4 normal pregnant women obtained at the same stage of gestation. On the basis of these findings, the 2 suspect pregnancies were terminated and the MLD diagnosis was subsequently confirmed in the aborted fetuses. (3 refs.) - *N. Mize.*

Institute of Medical Genetics
University of Oslo, Oslo, Norway

3153 **GRIFFITHS, MARGARET I.; & BOWIE, E. MARY.** The use of dimethothiazine in the treatment of childhood cerebral palsy. *Developmental Medicine and Child Neurology*, 15(1):25-32, 1973.

In a series of controlled and uncontrolled trials, a total of 27 children with cerebral palsy of variable etiology were treated with dimethothiazine to determine whether this drug was effective in the relief of spasticity. Improvement was measured individually in comparison with the level of prior motor functioning. Overall, the effect of the drug in children seems to be appreciably better than in adults. As compared with those who receive placebo, children receiving dimethothiazine generally showed significant improvement in the control of spasticity. The only exception occurred among those children suffering from dystonic cerebral palsy, where a deterioration following drug administration was noted. (16 refs.) - *N. Mize.*

Lea Castle Hospital
Wolverley, Worcestershire, England

3154 **SIPE, JACK C.** Leigh's syndrome: the adult form of subacute necrotizing encephalomyelopathy with predilection for the brainstem. *Neurology*, 23(10):1030-1038, 1973.

Subacute necrotizing encephalomyelopathy (SNE) in a 32-year-old woman corresponded exactly to the histopathology of "infantile" SNE. The lesions present in the brain of the patient conformed in every detail to the neuropathology of Leigh's infantile SNE, and the chronic initial phase could be viewed as merely a prolongation of the juvenile form, with eventual termination in adulthood. The clinical, familial, and biochemical factors common to the infantile form of SNE argue in favor of its designation as Leigh's disease, with the juvenile and adult forms being distinguished on the basis of clinical characteristics and classified more appropriately as Leigh's syndrome. The present case allowed for a comparison of the differences in regional localization and histopathology between Leigh's disease and Wernicke's encephalopathy. (24 refs.) - *B. J. Grylack.*

Stanford University School of Medicine
Stanford, California 94305

3155 **MANYAM, N.V.B.; & BRAVO-FERNANDEZ, E.** Lithium carbonate in Huntington's chorea. *Lancet*, 1(7810):1010, 1973. (Letter)

The use of lithium carbonate therapy in a case of Huntington's chorea (H.C.) is reported in a 36-year-old man with 10 years' history of choreiform movements. He was confined to a wheelchair and showed mental impairment (I.Q. of 75). He was treated in turn with haloperidol (2mg t.i.d.) and lithium carbonate (300mg t.i.d.), and then with both medications together. On the self-care functional assessment, taking the total time for dressing, undressing, shaving, and eating a meal before starting the treatment as 100%, there was no significant change on haloperidol; with combined haloperidol and lithium carbonate the time taken fell to 58% and the patient could come out of the wheelchair occasionally and walk around. (2 refs.) - *A. C. Schenker.*

V.A. Hospital
Wood, Wisconsin 53193

3156 **MOWAT, ALEX P.** Encephalopathy and fatty degeneration of viscera: Reye's syndrome. *Archives of Disease in Childhood*, 48(6):411-413, 1973.

The pathological and clinical features of encephalopathy and fatty degeneration of the viscera, or Reye's syndrome, are reviewed. The pathological features include marked cerebral edema, with or without anoxic neuronal degeneration, but with no cellular infiltration or demyelination. There is massive fatty infiltration of the liver at necropsy and liver glycogen is decreased. The disorder is recognized in children aged 2-15 years; the onset is acute with vomiting, disturbance of consciousness, convulsions, coma, and often decerebrate posture. The clinical course is often of deepening coma and death. No known infectious or toxic agent or metabolic abnormality has been recognized which will consistently cause the clinical biochemical and histopathological lesions. The cause of the encephalopathy is undetermined; there is no evidence of central nervous system infection. Apart from lack of jaundice, many of the features are similar to acute fulminant hepatic failure. Therapy consists mainly of correcting the hypoglycemia, hypoxia, acidosis, and electrolyte abnormalities; assisted respiration may be necessary. The mortality rate is high in this syndrome. (26 refs.) - *A. C. Schenker.*

King's College Hospital
Denmark Hill
London S.E.5., England

3157 **LOSOWSKY, M. S.; & SCOTT, B. B.** Hepatic encephalopathy. *British Medical Journal*, 3(5874):279-281, 1973.

In severe liver disease, neuropsychiatric changes may occur and progress to coma. These effects are termed hepatic encephalopathy. Ammonia appears to be one of the toxic products of bacterial degradation of nitrogenous material within the bowel responsible for hepatic encephalopathy, but it is not the only one and its effect does not explain several facts associated with hepatic encephalopathy. Gut bleeding, potassium depletion, acetazolamide, uremia, fluid and electrolyte abnormalities, sedatives, intercurrent infection, and constipation are often precipitating factors. Treatment aims at reducing the amount of nitrogenous products in the bowel, their breakdown by bacteria, or their absorption. (49 refs.) - *B. J. Grylack.*

University Department of Medicine
St. James' Hospital
Leeds LS9 7TF, England

3158 **AOKI, YASUNORI; & *LOMBROSO, CESARE T.** Prognostic value of electroencephalography in Reye's syndrome. *Neurology*, 23(4):333-343, 1973.

Electroencephalography may be of significant prognostic value in Reye's syndrome. Sequential EEGs of 30 patients with Reye's syndrome were classified by grade and used to predict outcome and occurrence of intensive treatment. The correlation between grade classification based on the EEGs and the clinical outcome of the 30 cases was high. All patients classified in grade 2 or above survived, all those in grade 4 or below died, and those in grade 3 survived or died in approximately equal numbers. Future aggressive therapeutic intervention can be precisely guided by serial monitoring of Reye's syndrome patients by EEG. (21 refs.) - *C. Wares.*

*Children's Hospital Medical Center
Boston, Massachusetts 02115

3159 **HUGHES, CHARLES P.; MYERS, FAY K.; SMITH, KEN; & TORACK, RICHARD M.** Nosologic problems in dementia: A clinical and pathologic study of 11 cases. *Neurology*, 23(4):344-351, 1973.

Pathologic correlations with observed primary or early dementia may be difficult to establish since some pathologic conditions are not prominent before autopsy. Eleven dementia patients were studied clinically and pathologically in order to try to find some pathologic identities which could be correlated with dementia. Cerebral biopsies or autopsies performed on these patients showed a loss of neurons, no evidence of spongiform change of the glia, basement membrane enlargement in cerebral capillaries, and some alteration of neuronal cytoplasmic organelles. None of these manifestations is considered specific for dementia at this time, but their usefulness as indicators of disease may be clarified in further studies. In the absence of establishment of definite causes of these various cases of dementia, clinical and pathologic diversity should remain unclassified. (16 refs.) - *C. Wares.*

Washington University School
of Medicine
St. Louis, Missouri

3160 **TROTTER, JOHN L.** Striatonigral degeneration, Alzheimer's disease, and inflammatory changes. *Neurology*, 23(11):1211-1216, 1973.

The characteristic morphologic changes of striatonigral degeneration were found in a 72-year-old woman with a 6-year history of Parkinson's syndrome. In addition, an inflammatory process, neurofibrillary tangles, iron deposition, senile plaques, and a small infarct in the right internal capsule were found. It is of clinical interest that this patient had a transient therapeutic effect with levodopa that later failed. It has been suggested that this failure may be due to the paucity of dopamine receptors and decarboxylase activity when the putamen is destroyed. It may be that the change from responsiveness to unresponsiveness in this case was due to progression of the inflammatory process. (17 refs.) - *A. C. Schenker.*

Washington University School
of Medicine
Box 1811, St. Louis, Missouri

3161 **GOMORI, ANDREW J.; PARTNOW, MICHAEL J.; HOROUPIAN, DIKRAN S.; & HIRANO, ASAO.** The ataxic form of Creutzfeldt-Jakob disease. *Archives of Neurology*, 29(5):318-323, 1973.

Three cases of Creutzfeldt-Jakob disease (CJD) are described, and previously reported cases are summarized. From a review of about 200 reports and the 3 cases presented, it is concluded that CJD may appear as an isolated cerebellar syndrome with or without dementia in its earliest stage. The differential diagnosis of cerebellar disease includes many and varied conditions, most of which can be established or excluded on the basis of history, clinical examination, and appropriate laboratory and radiologic tests. Patients with the ataxic form of the disease (which occurs in about 10% of cases) are not as likely to be diagnosed as having CJD as patients with other clinical forms of CJD. (33 refs.) - *A. C. Schenker.*

Montefiore Hospital and Medical
Center
Bronx, New York 10467

3162 **ELLIS, WILLIAM G.; SCHNEIDER, EDWARD L.; MCCULLOCH, JOHN R.; SUZUKI, KUNIHIKO; & EPSTEIN, CHARLES J.** Fetal globoid cell leukodystrophy (Krabbe disease): pathological and biochemical examination. *Archives of Neurology*, 29(4):253-257, 1973.

Histologic, ultrastructural, and biochemical findings in a 22-gestational-week fetus with globoid cell leukodystrophy (GLD) are presented. Parents of a child with enzymatically proved GLD sought genetic counseling after the child's death at 17 months. The GLD fetus of a subsequent pregnancy was aborted at 22 weeks gestation. The PAS-positive epitheloid-globoid cells (EGC), delayed myelination, and increased glial cell population in the central nervous system with almost complete absence of galactocerebroside β-galactosidase activity in the fetal liver and brain confirmed the *in utero* diagnosis of GLD. A chemically specific finding was a lack of cresyl violet metachromasia in white matter tracts immediately prior to and during myelination; this staining is highly specific for sulfatides of abnormal and normal myelin. Under electron microscopy, globoid cells, apparent

myelin phagocytosis, axonal dense bodies and dense granular material, and vesicular myelin were found which were not seen in control specimens. (32 refs.) - *A. C. Schenker.*

University of California
Davis, California 95616

3163 **HECHT, FREDERICK; MCCAW, BARBARA; & KOLER, ROBERT D.** Ataxia-telangiectasia—clonal growth of translocation lymphocytes. *New England Journal of Medicine*, 289(6):286-291, 1973.

Longitudinal studies of chromosomal breakage and of clonal proliferation were conducted in a clone of lymphocytes marked by a chromosome translocation in a male patient with ataxia telangiectasia. In the initial chromosome study, the first 60 cells contained a normal 46,XY karyotype, except for one cell with a D/D(Dq+;Dq-) translocation; 2 years later, cells with the same D/D translocation were observed. Subsequent studies showed an increasing percentage of lymphocytes containing the translocation as a function of time, more vigorous response to phytohemagglutinin, and less chromosome breakage than seen initially. The mitotic indexes gradually rose from less than 5 to approximately 30% in parallel with the growing proportion of translocation. The chromosome breakage and the propensity for new lymphocyte clones to arise in ataxia telangiectasia seem to be intimately connected to the risk of neoplasia inherent in the disease. The finding of a specific translocation involving D 14 in ataxia telangiectasia lymphocytes may prove to be a parallel situation to that recently discovered in chronic myelogenous leukemia. (42 refs.) - *A. C. Schenker.*

Child Development and
Rehabilitation Center
University of Oregon
Medical School
Portland, Oregon 97201

3164 **CARLSON, COLDEVIN B.; HARVEY, FREDERICK H.; & LOOP, JOHN.** Progressive alternating hemiplegia in early childhood with basal arterial stenosis and telangiectasia (moyamoya syndrome). *Neurology*, 23(7):734-744, 1973.

A large proportion of cases of acute acquired hemiplegia in children are caused by occlusive cerebrovascular disease. Cerebral arteriography of a unique case involving hemiplegic episodes in a 2-year-old boy showed bilateral stenosis of internal carotid arteries in the supraclinoid region, and diencephalic telangiectasia and dural anatomoses in the external carotid arteries. Focal absence or atrophy of the elastica interna was found in arteries of the circle of Willis and its branches, as well as bilateral cerebral infarctions in the distribution of carotid arteries. Cerebral ischemia despite relative absence of stenosis or occlusion in autopsy may be explained by the occurrence of death early in the disorder, before marked pathologic changes other than arterial dysfunction had occurred and because of treatment with aspirin and corticosteroids, which may have modified the development of inflammatory and fibrotic changes or thrombus formation. The case is shown to correspond to symptoms of progress of the moyamoya syndrome. (31 refs.) - *C. Wares.*

University of Washington School
of Medicine
Seattle, Washington

3165 **TERPLAN, KORNEL L.** Patterns of brain damage in infants and children with congenital heart disease. *American Journal of Diseases of Children*, 125(2):175-185, 1973.

Brain damage in infants and children with congenital heart disease has been positively associated with catheterization and other surgical procedures in a histologic analysis of 500 Ss. Thromboembolic infarctions had occurred in >17% (4 to 5 times greater) in surgical than in nonsurgical cases, with 39 directly following catheterization or catheterization and surgery. Anoxic cortical necroses were 4 times higher in the surgical group. Febrile episodes following infant catheterization or surgery may suggest an acquired or preexisting encephalitis associated with viral disease as well as with surgical procedures. Catheterization of the heart appears to carry a greater risk of causing brain damage the earlier in life it is performed. (17 refs.) - *C. Wares.*

Children's Hospital
Buffalo, New York

3166 **KOLAR, OLDRICH J.; & JOSEPHSON, DAVID A.** Cerebrospinal fluid transferrin II studies in ischemic disorders of the central nervous system. *Neurology*, 23(6):626-630, 1973.

Three explanations have been offered for the presence of the transferrin II (Tf II) precipitation arc in cerebrospinal fluid (CSF) in ischemic disorders of the central nervous system: removal of 4 sialic acid residues from the Tf molecule by exposure to neuraminidase, intracranial synthesis of Tf, or enzymatic degradation of Tf molecules by endopeptidases. CSF and serum immunoelectrophoresis in 1,452 patients with various neurologic disorders showed incidence of elongation of the Tf II precipitation arc correlated significantly ($p<0.001$) with increasing ages of patients. This age-dependent distribution reflected incidence of corresponding changes in CSF Tf II precipitate in patients with ischemic central nervous system disorders. (19 refs.) - *C. Wares.*

Indiana University Medical Center
Indianapolis, Indiana

MEDICAL ASPECTS – Etiologic Groupings

Unknown prenatal influence

3167 **CHERNICK, V.** Hyaline-membrane disease–therapy with constant lung-distending pressure. *New England Journal of Medicine*, 289(6):302-304, 1973.

The recent management of infants with hyaline-membrane disease is described, with particular emphasis on methods used to enhance oxygen exchange in the lung. Constant positive airway pressure and constant negative pressure increase transpulmonary pressure and hence increase functional residual capacity. The former may be applied through an endotracheal tube if it is connected to a 1-liter anesthesia bag and an inflow of inspired gas of known oxygen concentration. The outflow of gas is regulated to produce the desired pressure at the upper airway. Constant negative pressure obviates the need for endotracheal intubation, but one loses ready access to the body of the infant, and it is not often successful in infants with birthweights less than 1.25kg; the commonly used criteria are based on blood gas tensions and clinical assessment of the infant. About 50% of the infants with severe hyaline-membrane disease may be treated with constant distending pressure during spontaneous ventilation with 100% success. The remainder require artificial ventilation; oxygen exchange in the lung may be enhanced by the addition of a positive pressure of 3-7cm of water at the end of expiration. The mortality rate in these infants is about 50%. (14 refs.) - *A. C. Schenker.*

University of Manitoba
Winnipeg, Manitoba R3E OW 1, Canada

3168 **WOHLLEB, JAMES C.** Research on prisoners (cont.) *New England Journal of Medicine*, 289(6):325, 1973. (Letter)

The statement by Dr. Curtis Prout and his collegues that correctional institutions do not show excess frequency of medical and genetic diseases is refuted. Many studies bear evidence of increased frequency of generally poorer health and of specific diseases, including MR and chromosome abnormalities. The conclusion that an increase in disease incidence among prison populations means that criminal behavior is caused by disease is too hasty. Experiments on prisoners, owing to their peculiar medical characteristics and their forced confinement, may yield unreliable results for clinical trials that assume normal populations. Screening programs may be indicated for conditions particularly frequent in jails and may be useful in removing physical impediments to successful rehabilitation. In addition, inmates have a right to knowledge about themselves, to confidentiality of medical records, and to the right of informed consent in participation as Ss of research studies. (15 refs.) - *A. C. Schenker.*

3169 **STRECKER, ERNST-PETER; SCHEFFEL, URSULA; KELLEY, JONATHAN E. T.; & JAMES, A. EVERETTE, JR.** Cerebrospinal fluid absorption in communicating hydrocephalus: Evaluation of transfer of radioactive albumin from subarachnoid space to plasma. *Neurology*, 23(8):854-864, 1973.

Severe communicating hydrocephalus can sometimes be effectively treated with cerebrospinal fluid (CSF) diversionary shunting. The forms of hydrocephalus most usefully treated by this method involve dementia and ataxia, and may be diagnosed by physical examination, cisternography, and pneumoencephalography. In an experiment on 14 dogs, radioactive albumin was transferred and measured from subarachnoid space to plasma in a model of the mechanism of abnormal CSF absorption in communicating hydrocephalus. With development of hydroencephalus, a delay in transfer was correlated with ventricular entry and stasis of the radiopharmaceutical in cisternographic images. Findings of the study indicate that alternative pathway(s) of CSF absorption in communicating hydrocephalus is less efficient than normal absorption. (17 refs.) - *C. Wares.*

Johns Hopkins School of
Hygiene and Public Health
Baltimore, Maryland 21205

3170 **WOLINSKY, JERRY S.; BARNES, BARBARA D.; & MARGOLIS, M. THEODORE.** Diagnostic tests in normal pressure hydrocephalus. *Neurology*, 23(7):706-713, 1973.

Normal pressure or occult hydrocephalus dementia and gait disorder may be reversed. This specific syndrome of cortical function deterioration is diagnosed by 3 clinical procedures, although their value in differentiating this dementia from other forms is not known: pneumoencephalography, isotope cisternography, and the intrathecal lumbar spinal infusion test. Evaluation of 22 patients in such tests comparing the infusion test with the other two tests revealed that none of the tests alone or in combination could accurately predict response to surgery. False positive tests occurred with pneumoencephalography and with cisternography. The infusion test was found not to be diagnostically useful. Modifications of the tests to yield more reliable results would overcomplicate their administration and limit utilization. (33 refs.) - *C. Wares.*

University of California School of
Medicine
San Francisco, California

3171 **FORRESTER, R. M.** Wiedemann-Beckwith syndrome. *Lancet*, 2(7819):47, 1973. (Letter)

A study of a family with the Wiedmann-Beckwith syndrome supports the view that this is inherited as an autosomal dominant. The family tree shows 4 undoubted cases in the family of II/20, who also have 2 normal boys; 2 affected girls in this sibship have died and a girl and a boy survive. In the family of II/21, the child III/25 had a large umbilical hernia and a large tongue; III/26 had a very large exomphalos, atypical face, and multiple other abnormalities, and died after operation shortly after birth. It was not possible to examine all the other members of this family; I/7, who is still alive, remembers that a younger member of her family died soon after birth with some abnormality. There is no known consanguinity in this family; it looks as though the inheritance is an irregular dominant. (1 ref.) - *A. C. Schenker.*

Royal Albert Edward Infirmary
Wigan, England

3172 **NEVIN, N. C.; NESBITT, S.; & THOMPSON, W.** Myelocele and alpha-fetoprotein in amniotic fluid. *Lancet*, 1(7816):1383, 1973. (Letter)

Two patients with high amniotic fluid levels of α-fetoprotein (A.F.P.) in early pregnancy associated with a fetus having a myelocele are described. The women were aged 35 and 33 years, respectively; both had had infants with spina bifida. In the first case, amniotic fluid was obtained at hysterectomy at 15 weeks' gestation; A.F.P. concentration was 259 microgm/ml (normal range 10.2-35.0 microgm/ml). The second patient's A.F.P. at 6 weeks' gestation was 50 microgm/ml. The estimation of A.F.P. in amniotic fluid in early pregnancy is helpful in diagnosing not only anencephaly but also myelocele. (2 refs.) - *A. C. Schenker.*

Human Genetics Unit
Department of Medical Statistics
Queen's University of Belfast
Belfast, Ireland

3173 **CRAWFORD, J. SELWYN.** Pre-pregnancy oral contraceptives and respiratory-distress syndrome. *Lancet*, 1(7808):858-860, 1973.

Evidence is presented that the respiratory–distress syndrome (R.D.S.) might be less likely to develop in the infant at risk if the mother had at some time taken a course of an oral contraceptive. In a series of 92 infants with a birthweight of <2.5kg the mothers of 62 had never taken oral contraceptives; 20 of these infants had R.D.S., which was either moderate or severe in 12 cases (19.4%). Of the 30 infants whose mothers had taken an oral contraceptive, 5 (17%) had R.D.S., which was moderate in one case and mild in the other 4. The frequency of R.D.S. was closely related to gestational age and to birthweight. When analyzed, the results supported the suggestion by Auld *et al.* that R.D.S. is seen more commonly among infants whose low birthweight is appropriate to their gestational age than among those who are "small for dates." The results also suggest that oral contraceptives taken before pregnancy reduced the frequency of R.D.S. or mitigated its severity. If the present correlation is confirmed, the inference may be drawn that the mode of action of estrogens plays a role in long-term prophylaxis against R.D.S. The effect of oral contraception on the sex ratio is also worthy of investigation. (11 refs.) - *A. C. Schenker.*

Birmingham Maternity Hospital
Edgbaston, Birmingham B15 2TG
England

3174 **PENDER, CHARLES B.** Aetiology of the respiratory distress syndrome. *Lancet*, 1(7818):1516-1517, 1973. (Letter)

A response to Dr. Sivanesan's comments on the etiology of the respiratory distress syndrome (R.D.S.) is offered. Many investigators feel that the etiology of R.D.S. can be adequately explained by surfactant deficiency and that R.D.S. can be accurately predicted by the lecithin/sphingomyelin (LS) ratio. It is important to realize that the L/S ratio is a measure of lung maturity and not an accurate indicator of R.D.S. In the series cited, it is suggested that blood aspiration may be the cause of R.D.S. in hyaline-membrane disease (H.M.D.), H.M.D.-like disease without membranes, lobar opacification, some cases of intra-alveolar pulmonary hemorrhage, and areas of atelectasis in lungs of newborn infants. Since Dr. Sivanesan found that 4.2% of his patients died from amniotic-fluid aspiration, is it not possible that slight aspiration results in mild respiratory distress? Surfactant deficiency may be a very important factor in H.M.D., but it is not necessarily the complete answer. It is of the utmost importance that more attention be paid to the infant's initial respirations. (10 refs.) - *A. C. Schenker.*

Newborn Nurseries
Hotel Dieu and Cornwall General Hospitals
Cornwall, Ontario
Canada

3175 **KUZEMKO, J. A.** Aminophylline in apnoeic attacks of newborn. *Lancet*, 1(7818):1509. (Letter)

There is little evidence to support the view by Blennow and Svenningsen that the beneficial effects of aminophylline in the treatment of apneic attacks in the preterm babies may be of diuretic origin, implying that these babies may have cerebral edema. Apneic attacks in the small baby are different from the behavior of a baby following asphyxial birth. Moreover, the attacks often occur many days after birth. Metabolic and acid base changes and significant diuresis after aminophylline have not been a feature of the babies studied. (1 ref.) - *A. C. Schenker.*

Peterborough District Hospital
Thorpe Road
Peterborough PE3 6DA, England

3176 **DEWHURST, C. J.; HARVEY, D. R.; DUNHAM, ANGELA; & PARKINSON, CHRISTINE E.** Prediction of respiratory distress syndrome by estimation of surfactant in the amniotic fluid. *Lancet*, 1(7818):1475-1477, 1973.

Amniotic fluid, in various stages of pregnancy, was analyzed for lecithin/sphingomyelin (L/S) ratios with particular attention to levels in the respiratory distress syndrome (R.D.S.). The L/S ratio was measured in 178 samples from 165 patients. There was a steady increase in L/S ratios towards term; 3 cases of R.D.S. occurred with L/S ratios of 1.54, 1.41, and 1.54. In all cases the R.D.S. was mild, and no baby died as a result of hyaline membrane disease. The 3 cases of R.D.S. had lecithin concentrations of less than 2.5mg/100ml, but lecithin concentrations between 1.5 and 3.5mg/100ml came from 3 samples of patients who had healthy

babies. These results do not accord with those of Bhagwanani, who suggested that there is nuclear division in prognosis at lecithin concentrations of 3.5mg/100ml. The shake test is very useful in helping make a quick decision on the safety of induction of labor. (14 refs.) - *A. C. Schenker.*

Institute of Obstetrics and
Gynaecology
Queen Charlotte's Hospital
London W6, England

3177 **EMERY, A. E. H.; BURT, D.; & SCRIMGEOUR, J. B.** Aminoacid composition of amniotic fluid in central-nervous-system malformations. *Lancet*, 1(7810):970-971, 1973

The amino acid composition of amniotic fluid was analyzed at various stages of gestation in central-nervous-system (C.N.S.) malformations. The samples were obtained only from Rh-positive, healthy pregnant women at the time of therapeutic abortion or at delivery. There was a generalized increase in the amino acids, an increase which was most evident in methionine, isoleucine, leucine, tyrosine, and phenylalanine. Glutamic acid and arginine were also markedly increased in several specimens. If the observed changes in the amino acid composition of amniotic fluid in C.N.S. malformations should prove to be unrelated to fetal distress, amino acid analysis might prove a useful adjunct in the antenatal diagnosis of such disorders. (8 refs.) - *A. C. Schenker.*

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Edinburgh EH4 2HU, Scotland

3178 **SIVANESAN, S.** Respiratory-distress syndrome. *Lancet*, 1(7811):1061-1062, 1973. (Letter)

In reference to Dr. Pender's views on the pathogenesis of respiratory distress syndrome (R.D.S.), it would be of interest to know how many infants without contaminated amniotic fluid also developed respiratory distress. A definite diagnosis of R.D.S. can be made only by histopathological examination of the lungs, and without that it would be difficult to make such a diagnosis and impossible to ascertain whether "contaminated" amniotic fluid was present in the lower respiratory tract. In a study of a large series of infants dying of R.D.S., there was nothing to suggest that aspiration of "contaminated" amniotic fluid might be significant in the pathogenesis. Gitlin and Craig's main contribution was in demonstrating that the hyaline material contained fibrin, by using the fluorescent-antibody technique, and they did not arrive at the conclusion that fibrin in the lungs of infants dying of R.D.S. could not have been derived from amniotic fluid. There is also evidence that fibrin is derived from an exudative process which is a complication of oxygen therapy in infants with R.D.S. (4 refs.) - *A. C. Schenker.*

Department of Forensic Medicine
The University
Glasgow G12 8QQ, Scotland

3179 **CHISWICK, MALCOLM L.; & BURNARD, ERIC.** Respiratory-distress syndrome. *Lancet*, 1(7811):1060, 1973. (Letter)

It was suggested that Crawford's report on pre-pregnancy oral contraceptives and respiratory distress syndrome (R.D.S.) be viewed in a broader context. In a review of the histories of babies born before 35 weeks' gestation, the incidence of significant R.D.S. was reduced in pregnancies complicated by toxemia or hypertension, in spite of the lower gestational ages and the cesarean section deliveries of 15 of these babies. That diverse maternal conditions may be associated with accelerated pulmonary maturation is compatible with the placenta's having a key role in this effect. Histological studies in cases of prolonged membrane rupture suggest an association with chorioamniitis. This may be associated with enhanced fetal adrenal-gland secretion; Naeye showed that infants with hyaline-membrane disease had smaller adrenal glands than weight-matched controls. The reduced R.D.S. in maternal toxemia and hypertension is compatible with the finding of Davies that for a given gestational age, the incidence of R.D.S. is less in low-birthweight infants. (6 refs.) - *A. C. Schenker.*

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Hathersage Road
Manchester M13 OJH
England

3180 **CASPI, E.; SCHREYER, P.; & TAMIR, I.** Amniotic-fluid lecithin/sphingomyelin ratios and dexamethasone. *Lancet*, 2(7828):575, 1973. (Letter)

The lecithin/sphingomyelin ratio (L/S) in the amniotic fluid was followed in a patient admitted with premature rupture of the membranes at the thirty-third week of pregnancy. The baseline L/S was established and then 4mg dexamethasone was given by mouth daily for 8 days. After 3 days, the L/S rose sharply and continued on further treatment. The rate of rise of the L/S was greater than that seen in normal or diabetic patients who had received no steroid treatment. After 8 days of treatment, labor was induced by i.v. oxytocin infusion. A male weighing 2,700gm with an Apgar score of 10 was delivered. The baby did not require incubator care. This confirms findings by Liggins and Howie that dexamethasone induces lung maturation, reflected in higher surfactant release into amniotic fluid. (7 refs.) - *A. C. Schenker.*

Asaf Harofe Government Hospital
University of Tel-Aviv, Zerifin
Israel

3181 HARLAP, S.; & POLISHUK, W. Z. Respiratory-distress syndrome and diabetes. *Lancet*, 2(7828):577, 1973. (Letter)

Usher's thesis that the high incidence of respiratory distresss syndrome (R.D.S.) in babies born to diabetic mothers is a consequence only of their prematurity and their being born by cesarean section is challenged. One methodological flaw is that Usher's proof rests on the absence of significant differences in the incidence of R.D.S. between diabetics and nondiabetics in cesarean and vaginal deliveries at various gestational ages, but the numbers in their diabetic groups are too small to demonstrate statistical significance; the other flaw concerns the fact that the births used in the comparative study go back 25 years. Even had R.D.S. been recognized as a clinical entity for as long as 25 years, it would be most unwise to compare its apparent incidence in groups studied retrospectively for such different lengths of time as 3 years, 10 years, and 25 years. Caution is recommended in accepting the hypothesis that diabetes per se is not a risk for R.D.S., without further studies. (3 refs.) - *A. C. Schenker.*

Hebrew University
Hadassah Medical School
P.O.B. 1172
Jerusalem, Israel

3182 RENWICK, J. H. Potatoes and neural-tube defects. *Lancet*, 2(7828):562, 1973. (Letter)

Confirmation of geographic and seasonal relationships between the quality of potatoes and the incidence of anencephaly and spina bifida is reaffirmed. There is an urgent need to test, in a more direct fashion, the hypothesis of prevention previously put forward on the basis of the three relationships with poor potato quality. As this hypothesis is sometimes misstated, it is repeated: that, in the United Kingdom, 95% of anencephaly and spina bifida occurrences could be prevented by avoidance of the potato (not merely the blighted potato) during early pregnancy. (9 refs.) - *A. C. Schenker.*

London School of Hygiene and
Tropical Medicine
London WCIE 7HT, England

3183 THOMAS, D. B.; & BURNARD, E. D. Prevention of intravascular hemorrhage in low-birthweight babies. *Lancet*, 2(7828):562, 1973. (Letter)

In reference to statements that prophylactic administration of plasma concentrates or fresh frozen plasma (F.F.P.) does not prevent intraventricular hemorrhage (I.V.H.) in low-birthweight babies, evidence of I.V.H. reduction is presented. All sick babies have been monitored in this study, especially those who received assisted ventilation for deficiencies of vitamin-K-dependent factors. If the thrombotest was below 20%, 2ml of the factor concentrate P.P.S.B. (equivalent to 60ml F.F.P.) was given, with additional doses as indicated. Heparin was given as well if disseminated intravascular coagulation (D.I.C.) was diagnosed. By these means I.V.H. was significantly reduced. The reason no benefit was demonstrated in the trials described was probably that the protective influence of the added factors ceased after the second day of life, and I.V.H. commonly occurs on the second and third days. In the series described, comparisons of the incidence of I. V. H. beyond 30hr of age in relation to treatment and nontreatment groups are not valid, as by this time both groups are essentially the same as regards the relevant coagulation factors. (2 refs.) - *A. C. Schenker.*

Royal Alexandra Hospital for Children
New South Wales 2010, Australia

3184 **ALLAN, LINDSEY D.; DONALD, IAN; FERGUSON-SMITH, M. A.; SWEET, ELIZABETH M.; & GIBSON, A. A. M.** Amniotic-fluid alpha-fetoprotein in the antenatal diagnosis of spina bifida. *Lancet*, 2(7828):522-525, 1973.

α-fetoprotein (A.F.P.) was determined in over 200 samples of amniotic fluid, including 22 samples taken by transabdominal amniocentesis in early pregnancy in 20 mothers who had previously had one or more children with spina bifida or anencephaly. The results confirmed that A.F.P. estimation in amniotic fluid may be used to detect open neural tube defects early enough in pregnancy to allow termination. The 2 cases of neural tube defect which did not have grossly raised amniotic A.F.P. were sampled at 6 and 39 weeks' gestation; however, the 6 weeks' case may be abnormal at a concentration of 35 microgm, according to other reports; failure to detect A.F.P. at 39 weeks' gestation in a child with a large myelocele may be due to the small amounts of A.F.P. synthesized at this time. The results are sufficiently promising to justify screening of pregnancies in women who have had a child with a neural-tube defect. Most of the samples were obtained during the second trimester. (7 refs.) - *A. C. Schenker.*

Royal Hospital for Sick Children
Glasgow G3 8SJ, Scotland

3185 Intensive care and low birth-weight. *Lancet*, 2(7788):1183, 1972. (Editorial)

While studies continue, preliminary reports indicate that modern methods of intensive perinatal care for infants of low birthweight improve not only the survival rate but also the incidence and severity of cerebral abnormalities among survivors. For infants with congenital malformations, the picture is less clear. Some investigators suggest that the later status of these infants is affected by inappropriate perinatal care, while others record no influence. (11 refs.) - *N. Mize.*

3186 **SULLIVAN, MICHAEL J.; BANOWSKY, LYNN H.; & LACKNER, L. HENRY.** A urological complication of lumbar subarachnoid shunt. *American Jouanal of Diseases of Children*, 123(6):597-598, 1972.

An unusual case of extrinsic progressive ureteral obstruction secondary to compression by a nonfunctioning lumbar subarachnoid-peritoneal shunt has been seen in a 5-year-old girl with meningomyelocele and communicating hydrocephalus. The complicating progressive hydronephrosis was successfully treated by excision of the shunt and ureterolysis. (3 refs.) - *N. Mize.*

University of California
School of Medicine
Davis, California 95616

3187 **FUJIMOTO, ATSUKO; EBBIN, ALLAN J.; WILSON, MIRIAM G.; & NAKAMOTO, MASAO.** Successful pregnancy in woman with meningomyelocele. *Lancet*, 1(7794):104, 1973. (Letter)

A 23-year-old woman with meningomyelocele was delivered of a child normal in physical appearance; this case is believed to be unique. The meningomyelocele was at the thoracolumbar level and was repaired shortly after birth. The residual effects were urinary and bowel incontinence and severe weakness in the right leg. The husband, who is black, is healthy. The infant was delivered by cesarean section without anesthesia, since the mother had no sensation below the waist. It is hoped that others might report such cases in order that a series be formed as a basis for counseling. (4 refs.) - *A. C. Schenker.*

Los Angeles County-University
of Southern California Medical
Center
Los Angeles, California 90033

3188 **OAKLEY, GODFREY P., JR.** Anencephaly in Chile. *Lancet*, 1(7794)97, 1973 (Letter)

Reference is made to the report by Cruz-Coke that the prevalence of anencephaly among the new born in Chile has increased threefold over the past 11 years. He suggests that the widespread use of contraceptives, by increasing the relative number of primigravidous births, could account for the change. Increased prevalence of anencephaly among first-borns is, however, not constantly reported. It is suggested that rather than a real increase in anencephaly, the apparent increase is the result of an artefact in reporting, and that the reporting in Chile has recently improved. (6 refs.) - *A. C. Schenker.*

Center for Disease Control
Atlanta, Georgia 30333

3189 SHEPARD, THOMAS H. Anencephaly and potatoes. *Lancet*, 1(7794):97, 1973. (Letter)

In reference to Renwick's hypothesis that blighted potatoes are related to the neural closure defects meningomyelocele and anencephaly, a more specific hypothesis is proposed to explain this association. Linville and Shepard have described experiments in which cytochalasin B had a potent teratogenic action in preventing neural tube closure in the explanted chick embryo. Since this is a common mould metabolite, it is suggested that the teratogenic agent in blighted potatoes may be a cytochalasin. (3 refs.) - *A. C. Schenker.*

University of Washington School
of Medicine,
Seattle, Washington 98195

3190 RENWICK, J. H. Anencephaly and potatoes. *Lancet*, 1(7794):96-97, 1973. (Letter)

The concept of heterogeneity in anencephaly is not new, and the unusual sex-ratio and the great disparity between the incidence rate of anencephaly and that of spina bifida in Dr. Emmanual's Taiwan study (*Lancet*, Dec. 16, p. 1308) give it added plausibility. The criticism regarding the epidemiological evidence of the incidence rates in association with the blighted potato crops is countered by the actual data submitted: on the basis of the seasonal and geographical relationships between incidence rates and low quality of potato tubers, particularly those attacked by the fungus of late blight, it was clear that a bad blight year should be followed by a minor epidemic of anencephaly and spina bifida, a prediction which was repeatedly made good. A well-controlled potato avoidance trial is planned. (7 refs.) - *A. C. Schenker.*

London School of Hygiene and
Tropical Medicine
London WCIE 7HT, England

3191 VAN VLIET, P. K. J.; & *GUPTA, J. M. THAM v. Sodium bicarbonate in idiopathic respiratory distress syndrome. *Archives of Disease in Childhood*, 48(4):249-255, 1973.

A comparative study of the 2 buffers, THAM and sodium bicarbonate, was conducted in 2 groups of infants (n=50) with idiopathic respiratory distress syndrome (RDS) to discover which was more valuable in the management of these patients. The mortality rate in the group treated with sodium bicarbonate was 64%; in addition to oxygen and the buffer, respirators were used. The mortality rate in the THAM-treated group was 28%, although 4 of these infants died subsequently due to unrelated conditions. Ventilatory assistance was given to 13 of 25 babies who were treated with sodium bicarbonate and to 10 of the 25 THAM-treated babies. Of these there were 3 survivors in the former group and 4 in the latter. Of the 16 cases treated with sodium bicarbonate in which blood gas analysis had been done before and after treatment, PCO_2 rose in 5 cases and remained unchanged in 10; in the 21 cases treated with THAM in which PCO_2 had been determined before and after treatment, PCO_2 fell in 13 cases and remained unchanged in 8. (19 refs.) - *A. C. Schenker.*

*Prince of Wales Hospital
Randwick
N.S.W. 2031, Australia

3192 NAJJAR, SAMIR S.; DER KALOUSTIAN, VAZKEN M.; & NASSIF, SAVI I. Genital anomaly, mental retardation, and cardiomyopathy: a new syndrome? *Journal of Pediatrics*, 83(2):286-288, 1973.

A familial pattern of multiple anomalies is described in 3 male siblings; the combination of these defects is believed to be reported for the first time. The anomalies consisted of MR, abnormality of the external genitals, and a presumed cardiomyopathy. The lack of response to human chorionic gonadotropin and the elevated serum concentration of follicle-stimulating hormone in one patient strongly suggest primary testicular failure. A cardiac anomaly in the same patient was suggested by auscultatory, electrocardiographic, and radiologic findings. On 2 occasions this led to congestive heart failure and pericardial effusion. The 3 cases differ from previously reported entities of the same nature because of the conspicuous lack of associated phenotypic or chromosomal anomalies and the presumptive evidence of a cardiomyopathy of late onset. (4 refs.) - *A. C. Schenker.*

American University Hospital
Beirut, Lebanon

3193 **COHEN, M. MICHAEL, JR.; HALL, BRYAN D.; SMITH, DAVID W.; GRAHAM, C. BENJAMIN; & LAMPERT, KENNETH J.** A new syndrome with hypotonia, obesity, mental deficiency, and facial, oral, ocular, and limb anomalies. *Journal of Pediatrics*, 83(2):280-284, 1973.

A number of abnormalities shared by 3 patients of whom 2 were siblings are described as constituting a new syndrome. All 3 patients were white and all were products of full-term gestations during which decreased fetal activity was evident. Both sets of parents were apparently normal with no history of consanguinity. Poor weight gain characterized the early life period of all 3; other features in common–MR, abnormal craniofacies, micrognathia, narrow palate with crowded teeth, limb abnormalities, and spine abnormalities–were common in all 3. The patients differed in the ocular findings and in the presence of mild cutaneous syndactyly (in one case). The syndrome may follow an autosomal recessive mode of inheritance. (2 refs.) - *A. C. Schenker.*

School of Dentistry
University of Washington
Seattle, Washington 98105

3194 **JONES, D. E. DARNELL; PRITCHARD, KATHLEEN I.; GIOANNINI, CAROL A.; MOORE, DONALD T.; & BRADFORD, WILLIAM D.** Hydrops fetalis associated with idiopathic arterial calcification. *Obstetrics and Gynecology*, 39(3):435-440, 1972.

An unusual case of generalized arterial calcification associated with massive hydrops resulted in death for a 3,800g female Negro infant 21 hrs after fullterm delivery by cesarean section. Throughout the newborn period, the infant was grossly hydropic, apneic, and bradycardic. Postmortem findings included diffuse arterial calcification, myocardial infarction, and extensive periovarian psammoma bodies. Considering the infrequency of idiopathic generalization and its disproportionately high occurrence in siblings, a relationship between fibrinoid degeneration of maternal decidual vessels (present in this case) and altered ionic dynamics resulting in calcium deposition is a distinct etiologic possiblity. (9 refs.) - *N. Mize.*

Duke University Medical Center
Durham, North Carolina 27706

3195 **ADEMOWORE, ADEBAYO S.; *COUREY, NORMAN G.; & KIVE, JAMES S.** Relationships of maternal nutrition and weight gain to newborn birthweight. *Obstetrics and Gynecology*, 39(3):460-464, 1972.

Findings of an investigation into the relationships between maternal nutrition and weight gain and subsequent newborn birthweight in a well-characterized study population of 345 nulliparous women suggest, in particular, that the tendency toward smallness in nonwhite babies is probably more attributable to malnutrition of the mother than to genetic reasons. Generally, the data confirm a linear relationship between maternal weight gain in pregnancy and newborn birthweight, particularly for the nonwhite group. A particularly striking correlation between larger infant size and higher socioeconomic classification in the outpatient group was noted, a feature reflected again in marked differences observed between resident (living in the hospital for 9 or more weeks prior to delivery where an adequate diet was provided) and outpatient birthweights in the poverty level group. Resident birthweights were almost uniformly higher. For outpatients, a pattern of lower socioeconomic class associated with smaller babies prevailed. (16 refs.) - I,N. Mize.

*Deaconess Hospital
Buffalo, New York 14208

3196 **AXELROD, FELICIA B; & *DANCIS, JOSEPH.** Intrauterine growth retardation in familial dysautonomia. *American Journal of Diseases of Children*, 125(3):379-380, 1973.

Findings in a birthweight study of 53 full-term infants with familial dysautonomia, 33 of whom had normal siblings, suggest a direct relationship between this autosomal recessive disorder and intrauterine growth retardation. Mean birthweight of the dysautonomic children was significantly lower ($p<0.001$) than that for the normal siblings. When expected differences attributable to infant sex and birth order were considered, the results still revealed persistent differences between the two groups. The precise mechanism involved in this relationship remains speculative, however. (6 refs.) - *N. Mize.*

*New York University
School of Medicine
New York, NY 10016

3197 **GRAFF, G.; CHEMKE, J.; & *LANCET, M.** Familial recurring thanatophoric dwarfism. *Obstetrics and Gynecology*, 39(4):515-520, 1972.

The occurrence of thanatophoric dwarfism in 2 male siblings of phenotypically normal parents who are first-degree cousins provides additional support for a postulated autosomal recessive pattern of inheritance for this condition. In both cases, the infants died within minutes of birth. This lethal condition resembles homozygous achondroplasia, the newborns exhibiting extreme shortness of limbs and excessive subcutaneous fat and skin creases. Additionally, examination of the infants described here revealed urinary tract malformations and hydramnios. Since antenatal diagnosis is possible, early induction of labor is appropriate. (13 refs.) - *N. Mize.*

*Kaplan Hospital
Rehovot, Israel

3198 New method indicates hydrocephalus prognosis. *Journal of the American Medical Association*, 219(7):829, 1972.

A new radiographic technique is now enabling physicians to more precisely pinpoint those children with infantile hydrocephalus who need surgical intervention and those in whom the hydrocephalus may be expected to subside without the aid of atrioventricular shunts. So far, the prognoses indicated by the technique, which is based on 3 criteria: transfer of I^{131}-hippuran from cerebrospinal fluid into the blood, measurement of intraventricular hydrostatic pressure, and cerebral ventricular size, have reduced by one-third the number of shunt operations performed in hydrocephalus cases. - *N. Mize.*

3199 **LIEBER, ERNEST; GLASER, JOY H.; & JHAVERI, RAMESH.** Brachmann-de Lange syndrome. *American Journal of Diseases of Children*, 125(5):717-718, 1973.

Following the birth of a female infant exhibiting features of the Cornelia de Lange syndrome, a review of the available data on a male sibling born 5 years earlier showed his recorded congenital malformations to be compatible with a Cornelia de Lange diagnosis as well. Both children were delivered at 32 weeks gestation. The female newborn died 2 weeks after birth; her male sibling lived for only 5 days. Karyotypes of both infants were normal. This report is only the fifth documenting the Cornelia de Lange syndrome in two siblings. Etiology and mode of genetic transmission remain unknown. (8 refs.) - *N. Mize.*

Beth Israel Medical Center
New York, NY 10003

3200 **WEISWASSER, WARREN H.; HALL, BRYAN, D.; DELAVAN, GEORGE W.; & *SMITH, DAVID W.** Coffin-Siris syndrome. *American Journal of Diseases of Children*, 125(6):838-840, 1973.

Two more children, a 23-month-old boy and a 5-month-old girl, exhibiting the pattern of malformations associated with the Coffin-Siris syndrome, have increased the total number of known cases to 6. No clear cause or mode of inheritance has been identified for this condition, which is typically characterized by deficient growth and development, coarsened facial features, hypoplastic or absent fifth fingernails and toenails, poor feeding, vomiting, and recurrent respiratory infections. Chromosome studies have been normal. (3 refs.) - *N. Mize.*

*University Hospital
Seattle, Washington

3201 **HOWER, J.; CLAR, H. E.; & DUCHTING, M.** Mumps as a cause of hydrocephalus—continued. *Pediatrics*, 50(2):346-347, 1972. (Letter)

A shunt operation successfully relieved the symptoms of increased intracranial pressure which arose 3 months after the onset of mumps meningoencephalitis in a 6½-year-old boy. A pneumoencephalogram performed 5 months prior to infection had shown cerebrospinal fluid to be marginally adequate. These findings support those of other investigators in calling attention to a relationship between the two conditions. - *N. Mize.*

Ruhruniversitat
43 Essen, Germany

3202 **AMES, MARY D.; & SCHUT, LUIS.** Results of treatment of 171 consecutive myelomeningoceles 1963 to 1968. *Pediatrics*, 50(3):466-470, 1972.

Over a 6-year period, 171 children with myelomeningocele were treated conservatively in a simple but comprehensive home-oriented program emphasizing the prevention of complications, delayed orthopedic surgery, and general rehabilitation based on the child's developmental level. Ambulation is stressed, but bladder control is not emphasized until the child becomes concerned. The whole coordinated plan of treatment is under the direction of a neurosurgeon and a pediatrician and makes extensive use of paramedical personnel. Overall mortality figures and the percentage of patients who are ambulatory and competitive (with a Developmental or Intelligence Quotient of 80 or above) compare favorably with those of more aggressive programs emphasizing early surgical procedures. (7 refs.) - *N. Mize.*

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Philadelphia, Pennsylvania 19146

3203 **MENKES, JOHN H.** Kinky hair disease. *Pediatrics*, 50(2):181-183, 1972. (Editorial)

Recent discoveries by Danks *et al.* linking major features of the kinky hair disease with copper deficiency suggest a relatively simple treatment in the oral or parenteral administration of large doses of copper. The kinky hair disease is a degenerative condition of the central nervous system transmitted to male infants as a sex-linked recessive trait. Affected children have peculiar, stubby white hair, severe physical and mental retardation, and widespread focal cerebral and cerebellar degeneration. Particularly since the disease is treatable, serum copper and ceruloplasmin determinations should be included in the evaluation of male infants showing early signs of unexplained hypothermia, septicemia, failure to thrive, or seizures. (13 refs.) - *N. Mize.*

University of California
School of Medicine
Los Angeles, California 90024

3204 **REYNOLDS, JOHN W.** Treatment of idiopathic respiratory distress with large doses of corticoids. *Pediatrics*, 49(3):467, 1972. (Letter)

In the absence of published data on the effect of high-dose glucocorticoid therapy in hyaline membrane disease, it is important that the severity of the disease in each case be assessed objectively if clinical trials with either glucocorticoid or estrogen therapy are to be conducted. Moreover, there should be a concurrent control group matched for clinical severity and gestational age, and long-term follow-up of both groups should be carried out. Due to a 48-hour time lag between steroid administration and the demonstration of accelerated surfactant synthesis in experimental animal trials, even with so rapidly maturing an animal as the rabbit, it cannot be assumed that surfactant production in the human could be induced rapidly enough to be of clinical value. - *B. J. Grylack.*

Children's Hospital of St. Paul
St. Paul, Minnesota 55102

3205 **EWERBECK, H.; & *HELWIG, H.** Treatment of idiopathic respiratory distress with large doses of corticoids. *Pediatrics*, 49(3):467, 1972. (Letter)

Administration of extremely large doses of prednisolone intravenously has proven quite successful in the treatment of respiratory distress syndrome. In 1 trial, 5 of 10 infants survived. Three of the 5 who died were examined and revealed fatal cerebral bleeding. Upon discharge, 1 of the survivors had a normal neurologic status and the other 4 had mild to medium hypertonicity or hyperexcitability. Employment of this therapy for 1 to 3 days with a greater number of respiratory distress syndrome infants in earlier stages of the disease yielded even more favorable results. (2 refs.) - *B. J. Grylack.*

*Kinderkrankenhaus St. Hedwig
Freiburg, Germany

3206 **JONES, C. E. M.; RIVERS, R. P. A.; & TAGHIZADEH, A.** Disseminated intravascular coagulation and fetal hydrops in a newborn infant in association with a chorangioma of placenta. *Pediatrics*, 50(6):901-907, 1972.

A newborn infant with disseminated intravascular coagulation (DIC) represents the first reported instance of DIC in association with chorangioma of the placenta. The 2400g infant was edematous, covered with purpura, and did not breathe spontaneously at birth. Studies on blood drawn at 3 hours of age revealed slightly increased IgM, low serum protein, and anemia. Coagulation studies performed at age 3 hours indicated the presence of DIC with low levels of fibrinogen, low platelet count, and the presence of fibrin degradation products. Autopsy findings (after death at age 93 hours) included an enlarged heart (31.8g vs 14.5g expected) and macroscopic and microscopic evidence of necrosis in many tissues. The placental tumor was typical of a chorangioma. It is possible that the infarcts in the tumor, activated by abnormal capillary characteristics, led to the release of thromboplastic substances into the fetal circulation. Findings, such as the presence of megakaryocytes in the tumor, the purpura of the infant, the age of the thrombi, and the anemia of the infant at birth, suggest that DIC was present before birth. (35 refs.) - *V. J. Goldberg.*

University College Hospital Medical School
London W. C. 1, England

3207 **POLISHUK, W. Z.; ANTEBY, S.; BARON, H.; & STEIN, Y.** Lecithin/sphingomyelin ratio in amniotic fluid of diabetic mothers: a warning of respiratory distress in newborn? *Lancet*, 1(7793):36-38, 1973. (Letter)

The lecithin and sphingomyelin content of amniotic fluid obtained by amniocentesis in two pregnant diabetic mothers was studied in the last 8 weeks of pregnancy; the study was conducted to discover the relationship of the lecithin/sphingomyelin (L.S.) ratio to respiratory distress in the newborn. Determinations of the L.S. ratios in amniotic fluid of 98 pregnant women, between the fifth and last month of pregnancy, were used as a basis for comparison. In the diabetic and latent diabetic mothers the L.S. ratios showed low values. The reduction in the L.S. ratio in amniotic fluid may imply fetal proneness for respiratory distress and may serve as an indication for early delivery. - *A. C. Schenker.*

Lipid Research Laboratory
Mayer de Rothschild Hadassa
University Hospital
Jerusalem, Israel

3208 **HERMAN, S.; & REYNOLDS, E. O. R** Methods for improving oxygenation in infants mechanically ventilated for severe hyaline membrane disease. *Archives of Disease In Childhood*, 48(8):612-617, 1973.

Nine neonates (mean birthweights 1600g) with very severe hyaline membrane disease were mechanically ventilated with inspiration:expiration ratios (I:E) of 1:2 or 2:1 and with positive expiration pressure (EP) ranging from 0 to 10cm H_2O (mean O_2 concentration of 95%) to determine which was more effective in improving arterial oxygen tension and whether effects were additive. Five infants could not be weaned from the respirator and died. Base excess and mean aortic pressure were the same in both treatments. At each EP the arterial o_2 tension (PaO_2) was significantly higher at an I:E of 2:1 than 1:2. At each I:E, the arterial CO_2 concentration ($PaCO_2$) with EP of 10 was significantly higher than with EP of 5. At either I:E, the alveolar-arterial O_2 difference fell as EP increased. These studies demonstrate that a long inspiratory phase raises the PaO_2 without changing the $PaCO_2$ in mechanically ventilated respiratory distress syndrome infants. The highest PaO_2 values were obtained with I:E of 2:1 and EP of 5. The mechanism responsible for the improved PaO_2 may be a reduction of right to left shunts, which were calculated to account for 37% of the cardiac output at I:E of 2:1 and EP of 10. With the short inspiratory phase and high EP, there may have been alveolar hypoventilation. The use of high I:E and positive EP would normally cause an increase of intrathoracic pressure and a fall in cardiac output, but measurement of the intraesophageal pressure in 2 Ss showed no transmission of pressure into the intrathoracic space. (23 refs.) - *V. J. Goldberg.*

University College Hospital
Huntley Street, London WC1E 6AU
England

3209 **FEIGIN, I.; BUDZILOVICH, G.; WEINBERG, S.; & OGATA, J.** Degeneration of white matter in hypoxia, acidosis and edema. *Journal of Neuropathology and Experimental Neurology*, 32(1):125-143, 1973.

Factors involved in the degeneration of white matter in hypoxia are discussed, based on findings

in human brain at autopsy. Although localized hypoxia of sufficient degree will surely induce edema of the affected tissues, localized hypoxia of lesser degree will not do so in white matter; this is based on the frequent sparing of white matter adjacent to infarcted cortex. In contrast, generalized hypoxia of a degree which produces no or only little necrotizing changes may produce white matter lesions recognized as those of edema; this phenomenon is illustrated in 3 cases. Acidosis is usually associated with hypoxia and was demonstrated chemically in the blood of some cases reported. Severe edema alone can cause necrosis, this generally merging gradually with the surrounding tissues, but in the cases in which hypoxia plays a major role, the lesions are likely to be more focal and sharply delimited from the surrounding edematous tissue. In cases of generalized hypoxia there is a tendency for a clinical relapse and even death to follow a period of apparent recovery; this was illustrated in 2 cases of drug-addiction. The very severe changes in the brains of some individuals treated unsuccessfully with respirators represent major degrees of edema and hypoxia. (40 refs.) - *A. C. Schenker.*

New York University Medical Center
New York, New York

3210 **HAMBLETON, G.; & APPLEYARD, W. J.** Controlled trial of fresh frozen plasma in asphyxiated low birthweight infants. *Archives of Disease in Childhood*, 48(1):31-35, 1973.

The presumed protective effect of fresh frozen plasma on the coagulation status, as applied to infants of low birthweight who had suffered from birth asphyxia, was evaluated in 66 infants. There was no evidence that fresh frozen plasma prevents intraventricular hemorrhage; this plasma does not result in any real improvement in either the thrombotest or prothrombin times, though there was a significant change in the partial thromboplastin times in small-for-dates infants so treated. Small-for-dates babies cannot be distinguished from normal premature infants as judged by the coagulation data obtained. The results do not confirm a recent suggestion that such infants are initially deficient in vitamin K_1-dependent liver factors. (15 refs.) - *A. C. Schenker.*

Institute of Child Health
Hammersmith Hospital
London, England

3211 **EKELUND, H.; PANDOLFI, M.; OSTBERG, GOREL; & BJERNSTAD, A.** Fibrinolytic activity in lung tissue from neonates with hyaline membrane disease. *Acta Paediatrica Scandinavica*, 62(2):149-157, 1973.

The fibrinolytic activity of lung tissue obtained at autopsy from infants with normal lung tissue, hyaline membrane disease (HLM), atelectasis, and massive pulmonary hemorrhage was studied by means of the fibrinolysis autography technique. Among 15 HLM samples, 5 displayed no fibrinolytic activity, 9 had less than ½ the levels observed in normal lung, and 1 had elevated activity. Among 11 cases of atelectatic lung, 1 had no activity and 10 had variable fibrinolytic activities. In the sample from the hemorrhagic lung, the fibrinolytic activity was high. No relationships were found between fibrinolytic activity and gestational age, Apgar score, or interval between death and autopsy. These findings argue against defective fibrinolytic activity as a common factor in the pathogenesis of HLM. (27 refs.) - *V. J. Goldberg.*

Malmo allmanna sjukhus
S-214 01 Malmo, Sweden

3212 **PETTERSSON, FOLKE; MELANDER, STIG; & LAGERBERG, DAGMAR.** Perinatal mortality. *Acta Paediatrica Scandinavica*, 62(3):221-230, 1973.

A multiple regression analysis and a computer program for selecting optimal combinations of explanatory variables were used to study perinatal death among 7,190 consecutive single births at the University Hospital of Uppsala, Sweden. The overall perinatal mortality (stillbirth after 29 weeks gestation or death within 7 days of birth) was 1.52%. Increased risk of perinatal mortality was associated with extreme youth or age of the mother, low birthweight, congenital malformation, breech delivery, toxemia, and Rh-immunization. Unexpected findings included low risk of death among breech deliveries of primaparous women (a reflection of increased medical effort) and among infants of smoking vs nonsmoking mothers (babies of smokers are low weight but mature for date). The selection of explanatory variables provides predictive trees which can be used to evaluate combinations of factors associated with perinatal death. Since the coefficient of determination in the multiple regression analysis was low (0.2245),

the variables chosen don't explain overall perinatal mortality. A study of perinatal deaths among low-risk women showed that induction of labor with oxytocin and maternal respiratory tract infection are additional factors in perinatal death. Prevention of perinatal death can be accomplished by appropriate treatment of conditions which are associated with high risk (arrest of premature labor, prevention of Rh-isoimmunization, antenatal diagnosis of malformations, and use of cesarean section after induction failure with oxytocin. (33 refs.) - *V. J. Goldberg.*

Radiumhemmet
Karolinska Sjukhuset
10401 Stockholm 60, Sweden

3213 **PERSIANINOV, L.S.** The effect of normal and abnormal labor on the foetus:a survey. *Acta Obstetricia et Gynecologica Scandinavica*, 52(1):29-36, 1973.

Measurements of fetal heart rate, ECG, and phonocardiogram can be used to evaluate the status of the fetus during pregnancy and delivery. During normal labor (in 90% of the cases), the heart rate drops from 110 to 80 beats/min 10 to 12 sec after a contraction begins and returns to normal 30sec after the contraction ends. Abnormal labor (weak, uncoordinated, or spastic contractions), coiling of the cord around the neck, prematurity, or prolonged pregnancy may result in hypoxia and acidosis of the infant. Surgical procedures, including podalic version, breech extraction, and forceps and vacuum extraction, cause changes similar to those observed in hypoxia, including bradycardia, changes in the T-wave of the ECG, and displacement of the ST segment of the ECC. In healthy fetuses, the change in heart rate is transitory, but in fetuses at risk of asphxia, the heart rate change is more pronounced and prolonged. In conditions of chronic hypoxia (toxemia, prolonged pregnancy, diabetes, and Rh incompatibility), the capacity of the fetus to compensate during labor is impaired. Conditions such as coiling of the cord around the neck, fetal anemia, hydrops fetalis, or compression of the maternal inferior vena cava are associated with specific changes in fetal heart action. Monotony of rhythm on the phonocardiogram and reduction of the QRS complex of the ECG are signs of hypoxia. Chronic hypoxia may be treated by Nikolaev's triad (infusion of glucose, ascorbic acid and cardiozol, and oxygen inhalation), injection of estrogen, or infusion of sodium bicarbonate. The monitoring of pregnancies and the use of alkaline infusions in asphyxia have resulted in a 50% decrease in the USSR neonatal death rate. (19 refs.) - *V. J. Goldberg.*

The All-Union Institute
of Obstetrics and Gynecology
Elanskogo 2
Moscow G-435 USSR

3214 **FIELD, BARBARA.** The child with spina bifida. Medical and social aspects of the problems of a child with multiple handicaps and his family. *Medical Journal of Australia*, 2(23):1284-1287, 1972.

Infants born with spina bifida require early and continuing medical care. The decision for surgical closure of the defect and the explanation of the nature of the defect and the indicated procedures to the parents involves medical and social workers. At the Royal Alexandria Hospital, efforts are made to give support to families where correction of the defect is not possible; genetic counseling and full explanation of etiological factors are given. The mothers are trained in the care of the handicapped infant before it is taken home. Children with corrected spina bifida require frequent care by surgeons, radiologists, urologists, orthopedists, and physical therapists. Mothers of spina bifida children are encouraged to attend group therapy sessions to discuss problems of mutual concern. (Mothers of newborn spina bifida infants are excluded because they are undergoing a period of mourning and grief and are too confused to benefit.) The mothers are concerned with management and mobility training and are encouraged to voice hostility and guilt. A decrease in anxiety results in many cases. A children's group, which meets while the mothers are in session, stimulates competitive play and independence. The aim of the group therapy is to prepare the mothers and children for the introduction of the child as a handicapped individual into a society of normal children. (3 refs.) - *V. J. Goldberg.*

Meningomyelocele Clinic
Royal Alexandria Hospital for
Children
Camperdown, NSW 2050
Australia

3215 **DAVIES, D. P.** Protein intake and plasma osmolality in low birth weight infants. *Pediatric Research*, 7(1):55, 1973. (Abstract)

The optimum protein intake for low birthweight infants is discussed, and potential hazards of high dietary proteins are pointed out. The existence of potentially harmful hyperosmolar states which may accompany a high protein intake has not been generally noted. This increased solute load imposes a considerable stress on the kidney, which can excrete urine of only limited osmolality. A study is proposed which will investigate the plasma osmolality of low birthweight infants who have been randomly assigned to 3 different milk formulas of varying protein content; the biochemical data will be presented and discussed. - *A. C. Schenker.*

Welsh National School of Medicine
Department of Child Health
Cardiff, Wales

3216 **HRBEK, A.; KARLBERG, P., KJELLMER, I.: LIEDHOLM, M.; & OLLSON, T.** Evoked EEG responses related to perinatal asphyxia: I. Study in human newborn infants. *Pediatric Research*, 7(1):51, 1973. (Abstract)

Alterations of evoked responses (ER) in 26 newborn infants with various degree of asphyxia are discussed. The changes observed included: shape alterations, decrease of amplitude, increase of latency, and increased fatigability. All infants were given a risk score when discharged from the hospital, based on the perinatal information available. Eighteen patients were followed at regular intervals for signs of neurological handicaps and psychomotor development; they were also tested by the Griffiths mental development scale, up to 18 months of age. Ten children have passed 18 months of age, while 8 infants have not as yet reached it. The results revealed a close relationship between abnormalities in ER at birth and neurological and developmental aberrations. - *A. C. Schenker.*

University of Goteborg (Pediatrics)
Goteborg, Sweden

3217 **AGOSTINO, R.; ORZALESI, M.; NODARI, S.; MENDICINI, M.; COCA, L.; SAVIGONONI, P. G.; PICECE-BUCCI, S.; CALLIUMI, G.; & BUCCI, G.** Continuous positive airway pressure (CPAP) by nasal cannula in the respiratory distress syndrome (RDS) of the newborn. *Pediatric Research*, 7(1):50, 1973. (Abstract)

A device for administering continuous positive airway pressure (CPAP) to newborns with respiratory distress syndrome (RDS) is described. This device comprises a nose piece which can be introduced *in situ* and permits access to the baby for suction and feeding. Of 20 infants with birthweight above 1,200gm and severe RDS, 12 were treated chiefly by nasal CPAP: the overall mortality was 25% as compared to a previous mortality above 50% in comparable patients. Untoward effects by this device included small pressure necrosis of the septum in 2 cases and swelling of the nasal mucosa with partial obstruction in others. CPAP usually produced little or no improvement in patients with arterial pH below 7.2, hypercarbia, and/or clinically decreased inspiratory effort. - *A. C. Schenker.*

Institute of Pediatrics
University of Rome
Rome, Italy

3218 **JOHNSTON, D.I.; & *BLOOM, S. R.** Plasma glucagon levels in the term human infant and effect of hypoxia. *Archives of Disease in Childhood*, 48(6):451-454, 1973.

Neonatal pancreatic glucagon levels, determined by a highly sensitive assay procedure using small plasma volumes, were found to be low and to exhibit only a relatively small rise 2 hours after birth in 56 normal term infants delivered either vaginally or by cesarean section. For another group of 20 infants in whom labor was complicated by clinical signs of fetal distress, the mean glucagon level was 244pg/ml—significantly higher ($p>0.01$) than that found in either the normal infants or their mothers. Additionally, whereas the rise in neonatal glucagon after birth in the normal infants might have been caused by a fall in blood glucose, the finding of normal glucose levels in the infants with fetal distress suggests that this is

unlikely to be the main determinant of neonatal glucagon release. (26 refs.) - *N. Mize.*

*Institute of Clinical Research
Middlesex Hospital
London W1, England

3219 **GARCIA, CARLOS A.; MCGARRY, PAUL A.; VOIROL, MICHEL; & DUNCAN, CAROLINE.** Neurological involvement in the Smith-Lemli-Opitz syndrome: Clinical and neuropathological findings. *Developmental Medicine and Child Neurology*, 15(1):48-55, 1973.

Two infants exhibiting the characteristics of the Smith-Lemli-Opitz syndrome were examined clinically and pathologically and found to share previously unreported neurological features as well. In addition to the usual somatic findings—microcephaly, hypertonicity, mental and growth retardation, unusual facies, deformity of extremities, and incomplete development of external genitalia—both children, at autopsy, showed significant developmental anomalies at all levels of the CNS. The most notable involvement, however, was in the cerebral cortex, where neurons were found to be poorly developed and irregularly laminated. (21 refs.) - *N. Mize.*

1542 Tulane Avenue
New Orleans, Louisiana 70112

3220 **LANDRIGAN, PHILIP J.; *BERENBERG, WILLIAM; & BRESNAN, MICHAEL.** Behr's syndrome: Familial optic atrophy, spastic diplegia and ataxia. *Developmental Medicine and Child Neurology*, 15(1):41-47, 1973.

The finding of Behr's syndrome in 2 sisters of nonconsanguineous parents suggests that the condition was probably inherited as an autosomal recessive trait. Both girls exhibited the syndrome's characteristic features: bilateral optic atrophy, nonprogressive spinocerebellar degeneration of infantile onset, MR, and ataxia. Additionally, in both cases peripheral neuropathy, a previously unreported aspect of the disorder, was present. (34 refs.) - *N. Mize.*

*The Children's Hospital Medical Center
Boston, Massachusetts, 02115

3221 **FITCH, NAOMI; & PINSKY, LEONARD.** The Meckel syndrome with limited expression in relatives. *Clinical Genetics*, 4(1):33-37, 1973.

A family pedigree constructed from information supplied by the consanguineous parents of a male infant, in whom the pattern of malformations was strongly indicative of the Meckel syndrome, suggests that incomplete expression of this disorder can occur. Many of the infant's relatives exhibited congenital anomalies, such as cleft palate or lip, no eyes, syndactyly, polydactyly, hydrocephalus, and MR, compatible with a limited expression of the Meckel syndrome. (4 refs.) - *N. Mize.*

Jewish General Hospital
Montreal, Quebec, Canada

3222 **QAZI, QUTUB H.; & REED, T. EDWARD.** A problem in diagnosis of primary versus secondary microcephaly. *Clinical Genetics*, 4(1):46-52, 1973.

A group of 26 genetic or primary microcephalics was compared with respect to family and birth factors and clinical features with a group of 21 phenocopies or secondary microcephalics to help identify possibly useful criteria in making the differential diagnosis. Overall, the primary microcephalic group, as compared with the phenocopies, exhibited an increased incidence of consanguinity, a higher rate of miscarriage; fewer complications of pregnancy, delivery, and the postnatal period; relatively normal developmental milestones and lack of neurological problems; a higher incidence of subnormal intelligence in first-degree relatives; and apparent microcephaly in 50% at birth. Differences in birthweight and parental ages at birth were not significant. (13 refs.) - *N. Mize.*

Downstate Medical Center
Brooklyn, New York 11203

3223 **NAKANO, KENNETH K.** Anencephaly: a review. *Developmental Medicine and Child Neurology*, 15(3):383-400, 1973.

A comprehensive review of the literature on anencephaly includes specific sections on the embryology, pathology, and epidemiology of this lethal congenital malformation. Despite a variety of hypotheses, the precise etiology of this condition remains a mystery. Presently an environ-

mental cause acting early in pregnancy seems most likely. Additionally, some associated patterns such as low socioeconomic status, ethnic origin, geography, and national and local secular trends are relatively well established; others, such as the relationship between anencephaly and the mineral content of water, folate deficiency in pregnancy, contraceptive practices, and specific maternal factors, need to be further investigated. (106 refs.) - *N. Mize.*

Peter Bent Brigham Hospital
Boston, Massachusetts 02115

3224 **FITZHARDINGE, P. M.; & RAMSAY, M.** The improving outlook for the small prematurely born infant. *Developmental Medicine and Child Neurology*, 15(4):447-459, 1973.

A prospective study of growth and development in a group of 32 children who weighed less than 1251g at birth, but whose birthweight was appropriate for gestational age (average 28 weeks), was conducted among infants born at a Montreal hospital between 1960 and 1966. All were treated in a modern intensive care unit. Followup over a 5-year period showed 10 children to be completely normal in all respects. Only 2 of the 32 children had major neurological abnormalities; in another 9 children, minimal brain dysfunction was demonstrated. A total of 16 had abnormal EEG readings, and functionally significant retrolental fibroplasia was found in 2 children. Additionally, a pattern of recurrent respiratory infection and speech defects was detected. Overall, the mean IQ was 88 for the 20 boys and 92 for the girls. A suggestive relationship between impaired intellectual ability and recurrent severe apneic spells remains to be further investigated. (18 refs.) - *N. Mize.*

Montreal Children's Hospital
Montreal 108, Quebec, Canada

3225 **EMERY, JOHN L.; NUNN, HILARY; & SINGHAL, RENU.** The cell population of dorsal root ganglia in children with neurospinal dysraphism. *Developmental Medicine and Child Neurology*, 15(4):467-473, 1973.

The local nerve cell population was exhaustively examined in a male infant with an uncomplicated hemimyelomeningocele in the lumbar region following the infant's death at 10 days of age from *E. coli* septicemia. This infant was selected from among a group of 20 cadavers with neurospinal dysraphism. At the T7 cord level in these children, the nerve cells in the dorsal root ganglia appeared to be within normal limits with respect to number and apparent maturation. The children examined in the region of the hemi-myelomeningocele, however, showed total cell counts consistently lower on the affected side. Additionally, the dorsal root ganglion showed a greater proportion of large clear cells as compared to a normal control. The differences in these findings suggest a relative sensory overstimulation of the ganglia after formation. (12 refs.) - *N. Mize.*

The Children's Hospital
Western Bank, Sheffield 10, England

3226 **BIRD, MORRIS T.; RATCHESON, ROBERT A.; SEIGEL, BARRY A.; & *FISHMAN, MARVIN A.** The evaluation of arrested communicating hydrocephalus utilizing cerebrospinal fluid dynamics: A preliminary report. *Developmental Medicine and Child Neurology*, 15(4):474-482, 1973.

The measurement of CSF dynamics by constant infusion saline manometry, isotope cisternography, and serial air encephalography proved to be a useful and complementary means of assessing whether or not the hydrocephalic process has been arrested. Arrested hydrocephalus was diagnosed by these means in three cases; in a fourth, progressive hydrocephalus necessitating shunt revision was found. In all four instances, the standard clinical signs, head size, and skull radiographs were either variable or misleading otherwise. Even though the study size is small, the encouraging results obtained here would seem to recommend use of this method for defining arrested hydrocephalus. (13 refs.) - *N. Mize.*

*500 S. Kingshighway
St. Louis, Missouri 63110

3227 **GELLIS, SYDNEY S.; & FEINGOLD, MURRAY.** Incontinentia pigmenti (Bloch-Sulzberger syndrome). *American Journal of Diseases of Children*, 123(2):137-138, 1972.

A case was presented of incontinentia pigmenti, or

Bloch-Sulzberger syndrome, with major manifestations involving the skin, eyes, teeth, and central nervous system. About 35% of patients exhibit MR, microcephaly, hydrocephaly, seizures, or spasticity. Skeletal abnormalities are less frequent. The condition is probably inherited as an X-linked dominant trait which is lethal in the male. There is no specific treatment for skin lesions. (4 refs.) - *B. J. Grylack.*

Boston Floating Hospital
Boston, Massachusetts 02111

3228 Diet and congenital defects. *British Medical Journal*, 4(5842):684-685, 1972.

Despite support provided for the hypothesis put forward by J. H. Renwick that anencephalus and spina bifida are caused by eating, or possibly peeling or cooking, blighted potatoes in early pregnancy, the case against the potato is far from compelling. The low anencephalic rates recorded in the northwest of Ireland and in parts of Ulster, where blight is severe, are explained by Renwick as due to underreporting from these areas. He explains the relationship between neural-tube defects and low socioeconomic group by reference to the greater consumption of potatoes by the less well off; attributes the high incidence reported among young primigravidae to their greater likelihood to be living early in pregnancy in the parental home, where they will be exposed to more potatoes than if they were living outside the parental home; and relates the recent decline in the frequency of these malformations to successful crop-spraying against blight. Until definitive evidence can be provided, the theory can be explained to women with an affected child who are planning another pregnancy so that they can take steps towards avoidance of potatoes until the fetus is at least 2 months old if they so desire. (24 refs.) - *B. J. Grylack.*

3229 Tragic dilemma. *British Medical Journal*, 4(5840):567, 1972.

A 13-month-old baby boy suffering from spina bifida and hydrocephalus was taken into the custody of a local authority in order that the Hull Social Services Committee might give its consent to an operation medical consultants considered necessary to save his life but which the baby's parents opposed. The action illustrates a tragic dilemma that has been the subject of much debate among doctors for some time. The use of the powers afforded local authorities to remove a child from its parents' control should be scrutinized carefully by the medical profession. The question of what treatment, if any, should be given to babies with gross congenital defects is difficult enough for a doctor to discuss with parents who agree with him, but it becomes considerably more painful when parents with an opposing view are involved. (4 refs.) - *B. J. Grylack.*

3230 **TORI, CARLOS A.; KRAUSS, ALFRED N.; & AULD, PETER A. M.** Serial studies of lung volume and VA/Q in hyaline membrane disease. *Pediatric Research*, 7(2):82-88, 1973.

Serial studies of lung volume and V_A/Q changes in 20 infants with clinical and roentgenographic findings of hyaline membrane disease from its onset through recovery showed that all infants with the disease eventually had a reduced functional residual capacity (FRC) and that this measure was generally abnormally low at initial evaluation. FRC was found to be correlated inversely with alveolar-arterial O_2 gradients (AaD_O2) and Q_S/Q_t (true shunt) or shunt. The presence of cardiopulmonary shunting and of alveoli with the high V_A/Q relation was confirmed. The fact that O_2 and CO_2 gradients worsened as the disease progressed, at least in some infants, indicated that alveoli with normal V_A/Q were developing a nonventilated and perfused (shunt) or overventilated or underperfused (high V_A/Q) configuration. The 2 populations of alveoli with abnormal V_A/Q relationships persisted into the recovery period. However, the usually normal nitrogen gradients with normal nitrogen washouts indicated that the alveoli popped open and ventilated normally upon recovery, rather than proceeding through an intermediary stage characterized by maldistribution of ventilation. In the absence of maldistribution of ventilation or shunting, the possibility of a diffusion barrier might be considered. (9 refs.) - *B. J. Grylack.*

Cornell University Medical College
New York, New York

3231 **SOHN, RICHARD S.; SEIGEL, BARRY A.; GADO, MOKHTAR; & TORACK, RICHARD M.** Alzheimer's disease with abnormal cerebrospinal fluid flow. *Neurology*, 23(10):1058-1065, 1973.

Isotope cisternography clearly showed an ab-

normal pattern of cerebrospinal fluid flow, compatible with a diagnosis of communicating hydrocephalus, in a 77-year-old woman with the marked pathologic changes typical of Alzheimer's disease. The most significant findings were the early presence of ventricular activity and the persistence of ventricular concentration for 72 hours. Delayed ascent of the radiopharmaceutical over the convexities was also observed. The patient displayed a large number of senile plaques and neurofibrillary tangles in the brain, changes found more consistently in demented than in nondemented elderly patients. The virtual absence of unaffected cortex in her brain made this pathologic process the most probable cause of her dementia. The unusually severe gliosis, especially in the temporal lobes, was considered to be part of Alzheimer's disease. (10 refs.) - *B. J. Grylack.*

7500 Carson Street
Long Beach, California 90801

3232 **KAPLAN, SAMUEL D.** Hyaline-membrane disease and caesarean section. *Lancet*, 1(7807):834-835, 1973. (Letter)

Data from the Professional Activity Study (PAS), a computerized system which links all relevant information about mothers and their infants, are reported on hyaline membrane disease with respect to babies delivered by cesarean section. There is no reason to believe that deliveries by cesarean section are systematically biased to report longer lengths of gestation, but even if this were true, the risk of hyaline membrane disease is higher in infants thus delivered than in infants delivered vaginally with a shorter reported length of gestation. (3 refs.) - *A. C. Schenker.*

Commission on Professional and
Hospital Activities
Ann Arbor, Michigan 48105

3233 **GADD, R. L.** Prediction of respiratory-distress syndrome. *Lancet*, 2(7821):152, 1973. (Letter)

The advantages of the simple "shake" bubble test over the more complicated lecithin concentration estimations emphasized by Professor Dewhurst are corroborated. Despite ultrasonic localization of the placenta in every case, a bloody tap is occasionally unavoidable, particularly when the liquor volume is diminished in small-for-dates cases. In 19 cases, Professor Dewhurst and his coworkers estimated the lecithin concentration but found the results in 3 to be unreliable. Since total lecithin content of the sac had been shown as more reliable in borderline cases in a previous study, it would be interesting to discover whether the volumes in these cases were different from those of the others. (1 ref.) - *A. C. Schenker.*

St. Mary's Hospital
Manchester, England

3234 **LAXOVA, RENATA; OHARA, P. T.; & TIMOTHY, J. A. D.** A further example of lethal autosomal recessive condition in sibs. *Journal of Mental Deficiency Research*, 16(2):139-143, 1972.

A family with 3 affected and 2 unaffected siblings, in which the phenotypically healthy parents were first cousins, is compared to a family described by Neu *et al.* of 3 siblings similarly affected with microcephaly and multiple congenital abnormalities. The external appearance of the 3 siblings was grossly abnormal with eye, nose, and mouth abnormalities, grossly malformed and edematous hands and feet, and microcephaly or anencephaly. The condition was believed to be derived from an autosomal recessive inheritance. (2 refs.) - *A. C. Schenker.*

Kennedy-Galton Centre
Harperbury Hospital
Shenley, Radlett
Hertfordshire, England

3235 **ROBERTSON, J. SLOAN; MARAQA, M. I.; & JENNETT, BRYAN.** Ventriculoperitoneal shunting for hydrocephalus. *British Medical Journal*, 2(5861):289-292, 1973.

Ventriculoperitoneal shunting for hydrocephalus is reviewed as to its safety and efficacy as a technical procedure. Revision rate and complications were analyzed in 297 patients who had undergone this operation. Of the 297 patients 132 required revision; in those who survived more than a month but eventually died, the revision rate was appreciably higher than in long-term survivors. The ventriculoperitoneal technique has a very much lower mortality rate, attributable to the shunt itself, in the experiences reported. More than 20%

had no revision in the first 3 years and more than 30% had at least one 3-year period without revision; these results are considered encouraging. One significant advantage of ventriculoperitoneal drainage is that a valve is not required; the valve itself is commonly the site of blockage and the origin of septicemia. (15 refs.) - *A. C. Schenker.*

Institute of Neurological Sciences
Glasgow G51 4TF, Scotland

3236 **BARD, HARRY; ALBERT, GUY; TEASDALE, FRANCOIS; DORAY, BERNARD; & MARTINEAU, BERNARD.** Prophylactic antibiotics in chronic umbilical artery catheterization in respiratory distress syndrome. *Archives of Disease in Childhood*, 48(8):630-635, 1973.

A study is presented which aimed to evaluate in infants with severe respiratory distress syndrome (RDS) the dangers of systemic and local infection with the use of indwelling umbilical artery catheters for continuous fluid perfusion and the role of systemic antibiotics as a prophylactic measure in preventing catheter tip colonization, bacteremia, and localized infection. The study was confined to 75 high-risk newborn infants with RDS, divided alternately into treated and non-treated groups. There was no evidence of bacterial contamination upon insertion of the catheters; subsequently there was a rapid colonization and, by the second day, bacterial growth was shown in more than 80% of the umbilical cord swabs. In spite of this, the risk of bacteremia associated with umbilical artery catheterization in this technique is minimal. There was no statistically significant decrease in the pathogens colonized on the catheter tips in the treated infants; none among these, however, showed a bacteremia and all survivors have been followed without any evidence of sepsis. This procedure carries a certain risk of infection and should be reserved for specific clinical indication. (17 refs.) - *A. C. Schenker.*

Hospital Sainte-Justine
Montreal 250, Canada

3237 **GAZIT, E.; *GOODMAN, R. M.; KATZ-NELSON, M. BAT-MIRIAM; & ROTEM, Y.** The wrinkly skin syndrome: a new heritable disorder of connective tissue. *Clinical Genetics*, 4(3):186-192, 1973.

A unique constellation of connective tissue findings in 2 affected siblings is described, which is distinguished from similar known heritable disorders of connective tissue. Since both parents showed no clinical evidence of disease, it is assumed that an autosomal recessive pattern of transmission was responsible in this case. The disorder involves connective tissue, the wrinkly skin syndrome, and is characterized by the appearance at birth of wrinkled skin about the hands and feet, together with an increase in the number of creases on the ventral surfaces and decrease in extensibility of the skin. Other manifestations include the presence of a prominent venous pattern over the anterior chest, poor posture and muscular development, with winging of the scapulae, and short stature with a small head circumference. Though the proband also showed MR and myopia, which were not observed in her sister, these may not be among the characteristic features of the syndrome. (8 refs.) - *A. C. Schenker.*

*Chaim Sheba Medical Center
Tel Hashomer, Israel

3238 **JAMMES, J.; MIRHOSSEINE, S. A.; & HOLMES, L. B.** Syndrome of facial abnormalities, kyphoscoliosis and severe mental retardation. *Clinical Genetics*, 4(3):203-209, 1973.

Two brothers are described with a new MR syndrome, characterized by macrocephaly, hypertelorism, downward palpebral slant, protruding tongue, kyphoscoliosis, and marked difficulty in walking. Both had nonprogressive mental deficits, and the surviving brother has only the most primitive form of gesture language and does not express his needs. He also shows signs of bilateral pyramidal tract lesions with spastic paraparesis. The syndrome most similar to the one described here is that of MR and osteocartilagenous anomalies, first reported by Coffin and coworkers. An MR syndrome with several similar features was reported by Ruvalcaba and coworkers, but it was distinguished by additional anomalies not present in these cases. (10 refs.) - *A. C. Schenker.*

*Massachusetts General Hospital
Boston, Massachusetts 02114

3239 Normal-pressure hydrocephalus and psychiatric disorders. *British Medical Journal*, 2(5861):260, 1973. (Editorial)

A syndrome of progressive neurological degeneration with mental deterioration associated with normal pressure hydrocephalus is discussed. This syndrome was first described by Adams and colleagues in 1965, and included psychomotor retardation, unsteadiness of gait, and incontinence of urine. A characteristic pneumoencephalographic appearance has been recognized; air will pass no further than the Sylvian fissure. It has been suggested that there are adhesions in the subarachnoid space impairing the passage of cerebrospinal fluid to the arachnoid granulations in the superior longitudinal sinus. An alternative explanation is that dilatation of the basilar artery produces a functional obstruction of the basal cisterns. In view of the frequent deterioration after pneumoencephalography, it is wise to avoid this examination if the diagnosis is suspected. A ventriculoarterial shunt has been found to improve the condition in some cases. (9 refs.) - *A. C. Schenker.*

3240 **LOVEJOY, FREDERICK H., JR.; & BOYLE, WILLIAM E., JR.** Linear nevus sebaceous syndrome: report of two cases and a review of the literature. *Pediatrics*, 52(3):382-387, 1973.

Two patients with a linear nevus sebaceous syndrome, followed for 6 years, are described, and a review of 11 cases in the literature is presented. The first patient had a midline linear lesion on nasal columella and chin along with right cheek and mucosal lesions at 2 months of age; he has been and remains severely MR; seizures have persisted and have been difficult to control. The facial lesions have become less prominent with time. The second patient has classical cutaneous lesions, plus an elevated cerebrospinal fluid protein, but lacks MR and seizures. Together with the 11 cases reported in the literature, some points worthy of interest include: the seizure pattern, MR, generally normal lumbar punctures, the midline location and linear configuration of the sebaceous nevus, no racial predilection, and no sexual prevalence. Other abnormalities sporadically seen include lipodermoids of the conjuctiva, hydrocephalus, unilateral cortical atrophy, generalized aminoaciduria and vitamin D resistant rickets, coarctation of the aorta, and ameloblastoma. (20 refs.) - *A. C. Schenker.*

Children's Hospital Medical Center
Boston, Massachusetts 02115

3241 **RUBIN, ROSALYN A.; ROSENBLATT, CYNTHIA; & BALOW, BRUCE.** Psychological and educational sequelae of prematurity. *Pediatrics*, 52(3):352-363, 1973.

An assessment of the psychological and educational sequelae of premature birth through the early elementary school years is presented. Ss (n = 241) were drawn from a pool of children born at the University of Minnesota Hospitals between 1960 and 1964. Low birthweight (LBW) was found to be associated with impaired school progress as well as impaired performance on measures of mental development, language development, school readiness, and academic achievement from preschool through the early elementary school years. While there were no sex differences among LBW Ss on objective measures of intelligence and academic achievement, the LBW boys accounted for a far higher proportion of school-identified educational problems than did girls of similar birthweight. The present study reveals a strong association between moderately LBW and later manifestations of intellectual and educational impairment. It was concluded that LBW premature males and small-for-date Ss of both sexes constitute a high-risk population in terms of school functioning. (26 refs.) - *A. C. Schenker.*

University of Minnesota College
of Education
Minneapolis, Minnesota 55455

3242 Prevention of hyaline membrane disease. *British Medical Journal*, 1(5858):65-66, 1973. (Editorial)

The respiratory distress syndrome (RDS) in premature infants and prevention of hyaline membrane disease are discussed. C. G. Liggins and coworkers found in 1969 that lambs given intrafetal infusion of cortisol, dexamethasone, or corticotrophin were viable when born prematurely and had lungs which remained expanded. R. A. Delemos and colleagues then compared the lungs of lambs thus treated with those of their untreated twins. They found that animals treated within 47 days of term showed accelerated appearance of surfactant. (Deficiency of surfactant is considered to be a crucial factor in causing RDS.) Corticosteroids, given to mothers in whom premature

delivery threatened, or delivery was planned, were found to produce beneficial effects in infants of less than 32 weeks gestation in one study. A larger trial would be necessary to determine whether the antenatal administration of betamethasone is advantageous when the pregnancy has proceeded beyond 32 weeks gestation. Other possible modes of action of corticosteroids may have to be considered, however, before a more rational therapy can be advised for RDS. (15 refs.) - *A. C. Schenker.*

3243 **FALCONER, G. F.; HODGE, J. S.; & GADD, R. L.** Influence of amniotic fluid volume on lecithin estimation in prediction of respiratory distress. *British Medical Journal*, 2(5868):689-691, 1973.

Liquor volumes were estimated in connection with lecithin determinations in amniotic fluid in order to determine the total lecithin present and thus facilitate the management of borderline "at risk" cases. Liquor volume was estimated by the dilution method using sodium aminohippurate. In 100 samples of amniotic fluid obtained from 82 patients it was found that the liquor volume increased with age up to 34-36 weeks, and fell as term approached. One case is of interest since, in spite of the low concentration of lecithin (1.9mg/100ml), the volume of amniotic fluid was large and the baby's respiratory function turned out to be normal. The evidence of this study suggests that in borderline cases where the lecithin concentration is around 3.5mg/100ml and a decision has to be made on whether to deliver, the liquor volume determination is important. (12 refs.) - *A. C. Schenker.*

St. Mary's Hospital
Manchester M13 OJH, England

3244 **BHAGWANANI, S. G.; FAHMY, D.; & TURNBULL, A.C.** Bubble stability test compared with lecithin assay in prediction of respiratory distress syndrome. *British Medical Journal*, 1(5855):697-700, 1973.

Bubble stability test results were compared with the lecithin concentration values in the prediction of respiratory distress syndrome (RDS), to discover whether the former, which is simpler and faster than the latter, might be used in practice. Results of 106 samples of amniotic fluid, at various stages of gestation, determined by the bubble test, revealed that the earlier the gestation the greater the proportion of negative tests. Comparison of 80 samples analyzed by both methods showed that positive results (indicating fetal pulmonary maturity) were obtained in 37 cases and that every infant in this group had normal respiration. The results suggest that a positive bubble stability test may be of great value, since it practically excludes the possiblity of neonatal RDS; the gestation in these cases, however, was less than 37 weeks in all but one. Between 32 and 37 weeks' gestation, the bubble stability test has proved disappointing. An attempt was made to improve the predictive value of the test by modifying the end point, but although this modification increased the number of positive results in amniotic fluid obtained 48 hours before delivery, there was still a large proportion of negative results with normal neonatal respiration. The lecithin level at present provides the most reliable assessment. (15 refs.) - *A. C. Schenker.*

Welsh National School of Medicine
Cardiff CF2 1XF, Wales

3245 **JAMES, W.H.** Spontaneous abortion and neural tube defects. *British Medical Journal*, 4(5889):425-426, 1973. (Letter)

The hypothesis postulated by Roberts and Lloyd regarding spontaneous abortion rates among anencephaly and spina bifida (A.S.B.) cases in different social classes (areas A and B) is questioned. They found that the rates of reported previous abortion in the high-risk area were lower than those in the low-risk area, attributing the difference to environmental factors in the high risk area. The mean social class level of area B is clearly higher than that of area A; since women in the higher social classes are subject to lower stillbirth rates than those in the lower classes, this presumably also applies to spontaneous abortion. Hence the disparity exists in spite of and not because of social class differences. The technique of controlling for social class, furthermore, is coarse (manual and nonmanual), and the suspected reporting deficit may be dependent on factors other than social class. If the hypothesis is correct, there should be a higher proportion of A.S.B. fetuses in the low-risk area; it is suggested that samples of spontaneously aborted fetuses in the 2 areas be examined. (3 refs.) - *A.C. Schenker.*

University College
London N.W.1, England

3246 **VUIA, O.** Malformation of the paraflocculus and atresia of the foramina of Magendie and Luschka in a child. *Psychiatria, Neurologia, Neurochirurgia*, 76(4):261-266, 1973.

A 3½-year-old boy with hydrocephaly from birth was diagnosed as having an internal noncommunicating hydrocephaly. The child developed satisfactorily following application of a Pudenz-Heyer drainage, but his condition subsequently deteriorated, and he died with phenomena of raised intracranial pressure. The cavity of the fourth ventricle was found to be very dilated, a tumoral formation starting from the right side of the cerebellum on the floor of the fourth ventricle had protruded into the ventricular lumen, and obstruction of the foramina of Magendie and Luschka was noted on the left side. This syndrome, first described by Kramer (1954) and representing a type of hypoplasia of the anlage of the cerebellum associated with malformation of the fourth ventricle, should be listed next to the Dandy-Walker syndrome, in which atresia of the foramina of Magendie and Luschka is produced by cerebellar diaschisis. (11 refs.) - *B. J. Grylack.*

Pathologisches Institut der
Universitat Giessen
West Germany

3247 **HUNT, GILLIAN; LEWIN, WALPOLE; GLEAVE, JOHN; & GAIRDNER, DOUGLAS.** Predictive factors in open myelomeningocele with special reference to sensory level. *British Medical Journal*, 4(5886):197-201, 1973.

Follow-up was made of the 80 survivors of 113 consecutive cases of open myelomeningocele operated on within 48 hours of birth. At the time of the survey, survivors were aged 1 year 3 months to 7 years 8 months. Five cases were categorized as minimal disability, 32 with moderate disability, 31 with severe disability, and 12 with very severe disability, SMR being seen in 11 of this group. When features noted at birth were correlated with the overall disability, the importance of the sensory level as a predictor became apparent. The overall disability in cases with low sensory level was significantly better than in cases with high sensory level ($p<0.001$). Mobility, intelligence, and continence were all significantly better in the low sensory level group. The incidence of hydrocephalus, eye defects, kyphosis, chilblains, and fecal incontinence was also significantly lower among cases with low sensory level. Unexpectedly, a clear correlation was found between deaths from renal causes and sensory level, all 7 renal deaths in this series occurring in the 54 cases with a sensory level of T11 or above (significant at $p<0.01$). (11 refs.) - *B. J. Grylack.*

Addenbrooke's Hospital
Cambridge CB2 2QQ, England

3248 **SMITH, G. KEYS; & SMITH, E. DURHAM.** Selection for treatment in spina bifida cystica. *British Medical Journal*, 4(5886):189-197, 1973.

Of the 718 patients with spina bifida cystica treated at the Royal Children's Hospital, Melbourne (Australia), during the period 1943-1972, a study was made of those with myelomeningocele treated by modern methods, including ventriculo-atrial shunts, and with a minimum follow-up for mortality and quality of life of 3 and 7 years, respectively. In the series of 295 patients born during 1961-9, objective evidence was found that high neurological level, the presence of hydrocephalus at birth, and meningitis and ventriculitis were very adverse factors in mortality. Severe anomalies, other serious diseases, and gross renal pathology were also significant in mortality. The quality of life of 88 survivors out of 159 patients born during 1961-5 was shown to be dependent upon the type of lesions. When those with high and low lesions were compared, it was seen that 63% and 81%, respectively, had a normal mental state; 17% and 47%, respectively, attended normal school; all children with low lesions but none with high lesions were actively mobile; more children with low lesions than with high had a good renal prognosis; difficulties with urinary and bowel care were most marked in children with high lesions; and only one third of these children were expected to be normally employable, as compared with two thirds of those with low lesions. Immediate repair of the sac is recommended in most low lesions but should be deferred in high lesions, with reevaluation of high lesion survivors made at age 1 month or later. (11 refs.) - *B. J. Grylack.*

Handicapped Children's Centre
Royal Children's Hospital
Melbourne, Victoria 3052, Australia

3249 **LORBER, J.** Early results of selective treatment of spina bifida cystica. *British Medical Journal*, 4(5886):201-204, 1973.

A policy of selective treatment of infants with spina bifida cystica was proven reliable and the fear that some untreated severe cases of myelomeningocele might survive for long periods was not substantiated in a follow-up investigation of 37 newborn infants referred for assessment and possible treatment. Of 12 infants for whom active treatment was recommended and was accepted by parents, 1 died and 1 with a large thoracolumbosacral lesion upon admission has been subject to progressive renal deterioration; all the remaining 10 infants are alive, 3 are fully normal, and 4 of 7 with slight paraplegia pass a normal stream of urine and have good anal tone. Four of the 11 survivors had no hydrocephalus, 2 had moderate hydrocephalus not requiring treatment, the moderated condition of 2 other infants was controlled fully with isosorbide, and 3 had shunt-treated hydrocephalus. All 25 infants who were not treated because of specific adverse criteria judged upon admission died within 9 months of age, 10 from ventriculitis and 6 from the hydrocephalus itself. Once a decision was made not to treat these infants, they received normal nursing care and were not subjected to painful investigations. In these severely affected infants, no appreciable functional loss can result from failure to treat on the first day of life. If an occasional infant survives 6 months in good condition, treatment can then be initiated. (13 refs.) - *B. J. Grylack.*

University of Sheffield
Sheffield S10 2TH, England

3250 **CLARKE, C.A.; MCKENDRICK, OLIVE M.; & SHEPPARD, P. M.** Spina bifida and potatoes. *British Medical Journal*, 3(5874):251-254, 1973.

A retrospective study of the mothers of 83 living children affected with spina bifida and 85 carefully matched controls was carried out by means of personal interviews and a questionnaire in order to test the hypothesis that most cases of anencephaly and spina bifida in the western world are related to the mother's eating or being in contact with blighted potatoes early in pregnancy. The obtained data were evaluated by an χ^2, and Fisher's 2-tailed exact test and by the variance ratio and t tests, and a discriminative function analysis was also employed. The only significant comparison associated with potatoes was their origin, 20 mothers of spina bifida children obtaining some of their potatoes ready fried from the chip shop as compared with only 10 control mothers. The findings suggested that the mothers of spina bifida children may have had a poorer diet than the controls, even though they came from the same social group. These mothers were also significantly more likely to have taken drugs other than iron and vitamins during pregnancy and to have had a greater incidence of illnesses other than toxemia, pyelitis, and anemia. The results did not support the original hypothesis. In fact, figures for potato consumption were slightly less in the mothers of affected children. The data suggest rather that poor nutrition and general ill health, irrespective of social class, may be causal factors. (5 refs.) - *B. J. Grylack.*

Nuffield Unit of Medical Genetics
University of Liverpool
Liverpool, England

3251 **STEER, P. J.; & BEARD, R. W.** Two cases of continuous fetal heart rate monitoring in twins. *British Medical Journal*, 3(5874):263-265, 1973.

In 2 cases of twin pregnancy, knowledge of the status of the second twin from the continuous fetal heart rate pattern allowed successful management of labor. In the first case, monitoring gave sufficiently early indication of rapidly developing distress in the second twin to save it by cesarean section. In the second case, although cesarean section was carried out mainly because of distress in the first twin, the trace of the second twin had also begun to show late decelerations, and it probably would not have withstood the stress of delivery well either. (3 refs.) - *B. J. Grylack.*

St. Mary's Hospital
London W2 1PG, England

3252 **ROBERTS, C. J.; & LLOYD, SETSUKO.** Area differences in spontaneous abortion rates in South Wales and their relation to neural tube defect incidence. *British Medical Journal*, 4(5883):20-22, 1973.

Evidence from the South Wales Congenital Malformation Study (92,982 births during 1964-6 inclusive) suggests that malformed embryonic mortality rates are not constant from 1 area

population to another but that an inverse relationship exists within areas in South Wales between previous spontaneous abortion rate and the prevalence of anencephaly and/or spina bifida cystica at birth. Significant area differences in maternal age distribution, social class, and parity were rejected as an explanation of the findings. On the basis of these data, the hypothesis is proposed that the incidence early in pregnancy of neural tube defect is uniform throughout the areas of South Wales and that current substantial and relatively stable differences in area prevalence at birth are dependent upon small area differences in mortality of malformed embryos. It would appear, therefore, that the factors initiating the malformation are genetic and that related environmental factors exert an effect on abnormal fetuses by influencing their capacity to survive. (4 refs.) - *B. J. Grylack.*

Welsh National School of Medicine
Cardiff CF4 4XN, Wales

3253 **CROWELL, ROBERT M.; TEW, JOHN M., JR.; & MARK, VERNON H.** Aggressive dementia associated with normal pressure hydrocephalus: Report of two unusual cases. *Neurology*, 23(5):461-464, 1973.

Certain dementias may be caused by hydrocephalus even with observed normal pressure on lumbar puncture. Ventriculoatrial shunting may reverse the associated dementia when its cause is recognized. The clinical presentation usually includes memory disorder, ataxic gait, and incontinence. Such patients are also characteristically lethargic and drowsy. Two cases of dementia involving unusual aggressive, hostile behavior have also been found to be associated with normal pressure hydrocephalus. Such dementia should be investigated neuroradiologically so that treatable normal pressure hydrocephalus can be positively diagnosed and treated with ventriculoatrial shunting. (14 refs.) - *C. Wares.*

Boston City Hospital
Boston, Massachusetts 02118

3254 **DYKEN, PAUL R.; & HARPER, PETER S.** Congenital dystrophia myotonica. *Neurology*, 23(5):465-473, 1973.

Congenital dystrophia myotonica is more common in childhood than was formerly recognized. The specific clinical syndrome in persons affected is characterized by neonatal symptoms, congenital physical defects (such as talipes), and a higher incidence of MR. Acquired perinatal anoxia is seen to be important in the MR aspects of the syndrome. Patients typically have 1 parent, usually female, who has typical dystrophia myotonica of later onset. A genetic factor of transmission by autosomal dominant inheritance is assumed. (13 refs.) - *C. Wares.*

The Medical College of Georgia
Augusta, Georgia

3255 **GUILLEMINAULT, CHRISTIAN; HARPEY, JEAN P.; & LAFOURCADE, JACQUES.** Sjogren-Larsson syndrome: Report of two cases in twins. *Neurology*, 23(4):367-373, 1973.

The Sjogren-Larsson syndrome is a combination of congenital ichthyosiform erythroderma and a neurologic disorder associated with pyramidal spasticity, MR, speech defect, and epileptic-type convulsions. The syndrome varies in degree of infirmity and may be lethal in its extreme form. A laboratory study of the disease in a set of twins, involving dermatoglyphic and chromosomal examinations as well as a special diet, indicates the cause of the syndrome to be an inborn error of lipid metabolism. The administration of a median chain triglyceride diet has proven helpful in treating the disorder. (27 refs.) - *C. Wares.*

Hospital de la Salpetriere
Paris, France

3256 **BOTS, GERARD TH. A. M.; & STAAL, ARTHUR.** Amyotrophic lateral sclerosis-dementia complex, neuroaxonal dystrophy, and Hallervorden-Spatz disease. *Neurology*, 23(1):35-39, 1973.

Postmortem examination of neuropathologic data in a patient with clinical signs of amyotrophic lateral sclerosis-dementia complex reveals neuroaxonal dystrophy and Hallervorden-Spatz disease. Comparison of these findings with a previously reported patient with identical clinical symptoms but different neuropathologic findings serves to differentiate the knowledge to be gained by the method of electron microscopy from that observed in clinical symptoms. The age of onset is probably the only difference between neuroaxonal dystrophy and Hallervorden-Spatz disease. The use

of electron microscopy to examine lesions should be helpful in definitive diagnosis of such progressive hereditary disorders in future studies. (9 refs.).- *C. Wares.*

Academical Hospital
Rotterdam, The Netherlands

3257 **SMITH, ALFRED A.; & HUI, FERDINAND W.** Unmyelinated nerves in familial dysautonomia. *Neurology*, 23(1):8-11, 1973.

Unmyelinated nerves may account for many of the sensory and autonomic disturbances affecting patients with familial dysautonomia. Pathologic studies of tissues from 2 Ss with familial dysautonomia revealed many such unmyelinated fibers. Infusion or injection of methacholine can temporarily improve autonomia of various types, suggesting a functional defect of the parasympathetic and sensory systems rather than a nerve dysgenesis. The nerve dysfunction may involve acetylcholine activity which mediates the trophic influence of the nerves. Although nerve dysgenesis cannot be excluded as the basic lesion of dysautonomia, the effects of unmyelinated nerves studied make the dysgenesis theory less likely. (23 refs.) - *C. Wares.*

New York Medical College
New York, New York

3258 **CUTLER, ROBERT W. P.; MURRAY, JOEL E.; & MOODY, ROBERT A.** Overproduction of cerebrospinal fluid in communicating hydrocephalus: a case report. *Neurology*, 23(1):1-5, 1973.

The theory that overproduction of cerebrospinal fluid (CSF) is a cause of hydrocephalus has been advanced by various reports of relief after ablation of non-obstructing choroid plexus papillomas. CSF dynamics in a patient with communicating hydrocephalus without a choroid plexus were studied with the ventriculolumbar perfusion technique. The capacity to develop transventricular absorption during progressive ventricular enlargement is seen as a possibly useful compensatory mechanism for relief of hydrocephalus, since CSF dynamics were notably improved after completion of a ventriculoatrial shunt. (20 refs.) - *C. Wares.*

Pritzker School of Medicine
University of Chicago
Chicago, Illinois

3259 **SYPERT, GEORGE W.; LEFFMAN, HENRY; & OJEMANN, GEORGE A.** Occult normal pressure hydrocephalus manifested by parkinsonism-dementia complex. *Neurology*, 23(3):234-238, 1973.

Some cases of the clinical syndrome of dementia and parkinsonian movement disorder, previously considered untreatable, may be treated if they are found to be diverse manifestations of normal pressure hydrocephalus. In 3 cases of dementia and parkinsonian movement disorder, syndromes of affliction were found to be secondary to normal pressure hydrocephalus and each patient responded to cerebrospinal fluid shunting procedures positively. Differential diagnosis and mechanisms producing the syndromes of affliction involved may now be expanded to include parkinsonian movement disorder in an overall diagnosis of normal pressure hydrocephalus. (14 refs.) - *C. Wares.*

University of Washington
Neurology Service
Veterans Administration Hospital
Seattle, Washington

3260 **FRIED, K.; & FRASER, W.I.** Smith-Lemli-Opitz syndrome in an adult. *Journal of Mental Deficiency Research*, 16(1):30-34, 1972.

A young man with Smith-Lemli-Opitz syndrome, representing the second description of an adult with this condition, had the mental deficiency and odd facies characteristic of the syndrome but did not have micrognathia, microcephaly, or short neck and did not fail to thrive. The propositus is severely subnormal but shows sufficient social competence to require no supervision in washing, dressing, or table manners. The widely spaced nipples seen in this case appear to be a good sign in this recessive syndrome. (8 refs.) - *B. J. Grylack.*

University Department of
Human Genetics
Western General Hospital
Edinburgh, Scotland

3261 **BUNDEY, SARAH; DUTTON, G.; & WELLS, R. S.** A note on a case of "Tuberose sclerosis without adenoma sebaceum." *Journal of Mental Deficiency Research*, 16(1):67,1972.

A patient aged 13 years at the time that tuberous sclerosis without adenoma sebaceum was reported in him developed the typical skin condition of adenoma sebaceum at age 14 years. The total complex of SMR, epilepsy, and adenoma sebaceum would undoubtedly be diagnosed as the usual form of tuberous sclerosis and not a genetic variant. (1 ref.) - *B. J. Grylack.*

3262 **HABERLAND, CATHERINE; & BRUNNGRABER, E.** Micropolygyria: a histopathological and biochemical study. *Journal of Mental Deficiency Research*, 16(1):1-6, 1972.

Micropolygyria in the case of an 11-year-old boy was considered a developmental anomaly due to a disturbance in the normal course of cellular proliferation and migration across the cerebral wall and an interference with the arrangement of neurons in the characteristic laminar pattern. Neither the history nor the pathologic examination revealed changes suggestive of a specific etiology. Chemical analysis of the micropolygyric frontal cortex showed alterations in the ganglioside pattern, unexpected presence of hexosamine in the lower chloroform-rich phase, and a significant decrease in the fucose content of the nondialysable glycopeptide preparation. Since there was no appreciable histopathology to account for these changes, they may represent developmental anomalies in the chemical composition of the micropolygyric cortex, and the decrease in the content of the fucose-containing glycopeptides may relate to the formation of the synaptic complexes. (18 refs.) - *B. J. Grylack.*

Illinois State Psychiatric
Institute
Chicago, Illinois

3263 **VERT, P.; ANDRE, M.; & SIBOUT, M.** Continuous positive airway pressure and hydrocephalus. *Lancet*, 2(7824):319, 1973. (Letter)

Although the application of continuous positive airway pressure without intubation, by use of a rigid hood or plastic bag over the head, is simple and generally effective in treatment of respiratory distress syndrome, hydrocephalus has been observed following this type of administration. Effective therapy was obtained with this method alone, administered with a plastic bag, in 50 of 61 cases of infants with respiratory insufficiency secondary to respiratory distress syndrome and with this method followed by intermittent positive pressure ventilation in 4 additional cases. The most important and serious complication was hydrocephalus, occurring in 6 (12%) of the 50 infants. The hydrocephalus was judged to be posthemorrhagic and a result of the increased venous pressure produced by the collar tied loosely around the neck to hold the plastic bag. In contrast, continuous positive airway pressure induced directly via a nasotracheal tube did not increase the sagittal-sinus pressure by more than 1 cm H_2O. (2 refs.) - *B. J. Grylack.*

Service de Medecine et Reanimation
neonatales
Maternite Regionale
54042 Nancy-Cedex, France

3264 **CHOU, PAULA J.; & *ACKERMAN, BRUCE D.** Perinatal acidosis and placental transfusion. *Acta Paediatrica Scandinavica*, 62(4):417-422, 1973.

Thirty-six infants of primiparous mothers and 39 infants born to mothers whose median parity number was 4 were evaluated for the effect of fetal asphyxia on the distribution of blood volume between the placenta and fetus. All the infants were born vaginally. Acidosis was related significantly to reduced residual placental blood volume ($r=0.3177$, $p<0.05$) for multiparous deliveries but not for primiparous deliveries. The data suggest that, in the infant with acidosis, if there is a change in the blood volume of the infant, it will be in the direction of transfer from placenta to fetus and will result in an increased neonatal blood volume. Although there is a clear trend only for multiparous deliveries, there is no evidence that acidosis is ever associated with increased residual placental blood volume for primiparous deliveries either. (11 refs.) - *B. J. Grylack.*

*Long Island Jewish-Hillside Medical
Center
New Hyde Park, New York 11040

3265 **AHLSTROM, HANS; JONSON, BJORN; & SVENNINGSEN, NILS W.** Continuous positive airway pressure with a face chamber in early treatment of idiopathic respiratory distress syndrome. *Acta Paediatrica Scandinavica*, 62(4):433-436, 1973.

Continuous positive airway pressure treatment initiated early with a face chamber mounted on the intensive care crib of infants with idiopathic respiratory distress syndrome was successful in 7 out of 8 surviving patients. No complication referrable to the treatment was noted. This treatment did not use intubation and was found to be convenient and without risks. (11 refs.) - *B. J. Grylack.*

University of Lund
S-221 85 Lund, Sweden

3266 **OAKLEY, GODFREY P., JR.; FLYNT, J. WILLIAM, JR.; & FALEK, ARTHUR.** Hormonal pregnancy tests and congenital malformations. *Lancet*, 2(7823):256-257, 1973. (Letter)

Data collected during interviews of metropolitan Atlanta (Georgia) women who gave birth to malformed children were studied for evidence of the teratogenicity of hormonal pregnancy tests. Of 436 women interviewed, 46 (10.6%) of the 433 answering the question regarding this test had received such a test in the first trimester of pregnancy. There was a similar proportion of positive responses in all defect groups. The absence of a significant difference between chromosomal and nonchromosomal groups (8.3% and 11.1%, respectively) suggested that the tests are not causally associated with malformations. The strength of this suggestion is not the same for each defect group, however. While the data provided no definite evidence that the tests are teratogenic, the study did not prove that they are not teratogenic. (5 refs.) - *B. J. Grylack.*

Cancer and Birth Defects Branch
Epidemiology Program
Center for Disease Control
Atlanta, Georgia 30333

3267 Increasing the transpulmonary pressure in respiratory-distress syndrome. *Lancet*, 2(7823):244-245, 1973.

Therapeutic raising of transpulmonary pressure in cases of severe respiratory distress syndrome may be accomplished by the continuous positive airway pressure (CPAP) method or, alternatively, by application of continuous negative external pressure (CNP) to the whole body below the neck. Whereas this therapy is used during spontaneous respiration, an increased end-expiratory pressure may also be applied during artificial ventilation, when it is called positive end-expiratory pressure (PEEP). Physiologically CPAP and CNP have an identical effect on the transpulmonary pressure and the cardiovascular system, yet each has its distinct clinical advantages and disadvantages. A recent trial has shown that rather than deferring the use of CPAP and CNP until 12 to 24 or more hours after birth, an attempt should be made to identify the more serious cases of respiratory distress syndrome early in the course of the disease and to counter progressive atelectasis before any serious deterioration of the clinical status occurs. (17 refs.) - *B. J. Grylack.*

3268 **BEARD, R. W.** False interpretation of fetal heart monitoring. *British Medical Journal*, 4(5889):420-421, 1973.

Fetal heart monitoring is a useful obstetrical practice in spite of isolated incidences of mistaking the maternal heart beat for that of the fetus when the fetus has died. In such cases the fetus acts as a conductor for the lower voltage maternal ECG signal, which would otherwise be cancelled out by the fetal signal. No cases of recording the maternal heart rate while the fetus is still alive have been reported; well documented cases of such phenomenon should be reported to the correspondent. (1 ref.) - *C. Wares.*

Department of Obstetrics and Gynaecology
St. Mary's Hospital Medical School
London W2, England

3269 **LISTER, JAMES.** Selection for treatment in spina bifida cystica. *British Medical Journal*, 4(5888):355, 1973.

The selection of children born with an open myelomeningocele (spina bifida cystica) for active treatment is largely dependent upon the individual physician involved in each case. The climate of individual opinion as to whether such children should be treated appears to be tending toward declining such selections. There were 180 referrals for active treatment in a 21-month period at 1 hospital, followed by only 115 referrals in the next 21 months. - *C. Wares.*

Children's Hospital
Sheffield, England

3270 **ROSS, EUAN M.; BUTLER N. R.; & GOLDSTEIN, H.** Smoking hazards to the fetus. *British Medical Journal*, 4(5883):51, 1973.

Dr. Hickey and his colleagues should not dismiss the possibility that there is a causal relationship between maternal smoking and low birthweight in infants simply because not all babies of smokers are of low birthweight. The possibility of such a causal relationship should be investigated by controlled trial rather than dismissed by assertions of error. (3 refs.) - *N. Jarvis.*

Royal Hospital for Sick Children
Bristol, England

3271 **BHAGWANANI, S. G.** Shake test on amniotic fluid and the respiratory distress syndrome. *British Medical Journal*, 4(5883):51-52, 1973.

Contrary to a previous report, a predelivery amniotic fluid lecithin concentration of 3.5mg/100ml has not been necessarily associated with neonatal respiratory distress. The risk of pulmonary hypoperfusion in the neonatal period due to low lecithin levels should be balanced against the risk of intrauterine death in consideration of premature induction of delivery. The additional factors of premature induction should also be considered for assessing the potential risk of respiratory distress syndrome in the neonate. The bubble stability test previously recommended is an unreliable indicator in such assessments. (3 refs.) - *C. Wares.*

Lady Hardinge Medical College
New Delhi, India

3272 **HICKEY, R. J.; HARNER, E. B.; CLELLAND, R. C.; & BOYCE, D. E.** Smoking hazards to the fetus. *British Medical Journal*, 3(5878):501, 1973.

It cannot be concluded that smoking in pregnancy causes adverse effects on the developing fetus, since the statistics on higher incidence of lower-weight children born of smoking women are not sufficient grounds for indication of cause. Rather, smoking behavior and birthweights may be influenced by a common cause such as individual genotype or constitution (for example, deficient bioenergetics or environmental mutagenic hazards). The possible causal relationships of the smoking-birthweight association are not yet clearly established. (18 refs.) - *C. Wares.*

University of Pennsylvania
Philadelphia, Pennsylvania

3273 **LORBER, JOHN.** Severely malformed children. *British Medical Journal*, 3(5870):46, 1973.

Selected babies with spina bifida are untreated, according to a certain medical policy, because of the severity of their condition. Of a group of 25 selected not to be treated, all died within 8 months. The recommendation to treat or not to treat such babies should be made by an expert in this field to prevent the survival of children with gross handicaps. Occasionally severely affected children will survive without treatment, but it is unfair to blame the physician for their condition, since cases of profound handicap exist even among those who received every available therapy in the days when treatment was offered indiscriminately. (2 refs.) - *N. Jarvis.*

Children's Hospital
Sheffield, England

3274 **COURTNEY, LOUIS D.** Prevention of hyaline membrane disease. *British Medical Journal*, 3(5860):236, 1973.

Appropriate delay in clamping the umbilical cord after delivery of a premature or dysmature baby is an important factor in the prevention of hyaline membrane disease, since the hypovolemia which occurs if blood volume of the newborn infant is drastically reduced is a logical cause for failure of pulmonary expansion. The baby should be held at a level with or below the level of the vulva to facilitate transfusion of blood through the umbilical cord. (1 ref.) - *C. Wares.*

Lisdarn Hospital
County Cavan, Eire
Ireland

3275 **JOHNSON, P.** Prevention of hyaline membrane disease. *British Medical Journal*, 2(5867):660, 1973.

Enhancement of human viability by corticosteroids in cases of hyaline membrane disease is

not assured by reports of enhanced pulmonary maturation observed in animal experiments with corticosteroid. Experiments on lambs have shown very little evidence of improved viability as distinct from improved lung maturation after hydrocortisone infusion. Other experiments provide evidence of lowered quality of viability in surviving test animals. Treatment of human respiratory distress in the neonatal period has been more constructively focused on the supplying of continuous positive airway pressure (9 refs.) - *C. Wares.*

Nuffield Institute for Medical
Research
Oxford, England

3276 WORTH, R. J. Treatment of spina bifida cystica. *British Medical Journal*, 2(5857):51-52, 1973.

Attention is called to the fact that a previous article discussing recommended primary treatment of cases of spina bifida cystica erroneously referred to a particular case at Hull Royal Infirmary as an example. The case cited was actually a complex instance of continuing care for a child who had already been treated and in and about whom medical and legal complications had developed. (1 ref.) - *C. Wares.*

Hull Royal Infirmary
Hull, England

3277 BELL, CHRISTOPHER. Obstetric prevention of mental retardation. *British Medical Journal*, 2(5860):246, 1973.

Tests on experimental animals used as preclinical obstetrical models have shown that blockage of neural dilator influences on the uterine arterial supply may cause neonatal asphyxia. This asphyxia has been associated with deleterious effects on perinatal mental capacity. With these experimental findings in mind, caution is advised in the administration of anticholinergic agents during pregnancy for either diagnostic or therapeutic purposes. (4 refs.) - *C. Wares.*

University of Melbourne
Parkville, Victoria, Australia

3278 BROTHERTON, B. J.; & DRAYCOTT, V. Spina bifida splint. *British Medical Journal*, 1(5855):743, 1973.

The "Draycott-Oswestry" spina bifida splint maintains the correct leg position after operation on children with myelomeningocele. It is made of sheepskin and velcro bands, and may include foot supports. The splint is useful for treatment of pathological fracture of the femur and it prevents external rotation. Illustrations are provided. - *C. Wares.*

Robert Jones and Agnes Hunt
Orthopaedic Hospital
Oswestry, Shropshire, England

3279 DRILLIEN, CECIL M. Fresh approaches to prospective studies of low birth weight infants. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 10, pp. 198-209.

Preliminary findings are presented from a study of 300 infants of 2,000gm birthweight and under, aimed at identifying at earlier age those children who will encounter difficulties at school and relating handicaps to etiological factors. It was revealed that low birthweight infants can be divided into 3 main etiological categories with different prognoses: those with developmental anomalies of the fetus; those who have suffered from hypoxia and malnutrition; and those who are delivered prematurely by accident. In the first category, there is a high incidence of congenital anomalies and of maternal infertility and a high risk of mental and neurological handicaps. Infants in the second category are less likely to have major handicaps but may show an increase of mild degrees of MR and minor neurological abnormalities at later ages. Infants in the third category are potentially normal infants whose later status may depend on postnatal factors. (6 refs.) - *A. C. Schenker.*

White Top Foundation
University of Dundee
Dundee, Scotland

3280 SUMI, S. MARK; LEECH, RICHARD W.; ALVORD, ELLSWORTH C., JR.; ENG, MARLENE; & UELAND, KENT. Sudanophilic lipids in the unmyelinated primate

cerebral white matter after intrauterine hypoxia and acidosis In: Nurnberger, John I., ed., *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 9, pp. 176-197.

Sudanophilic lipids were studied in the cerebral white matter of premature monkey brains and the results extrapolated to findings in infants coming to autopsy. The experimental animals comprised fetuses of monkeys (Macaca nemestrina) in whom hypertension was induced by the i.v. infusion of Vasoxyl (methoxamine hydrochloride). In all 8 experimental animals, many lipid-containing cells were found in the unmyelinated white matter of the frontal and occipital lobes and the corpus callosum. The findings of lipid-containing cells in 2 control animals suggest that some of these cells may be normal, but their distribution in the germinal matrix in one animal was quite different and could not be related to premyelin lipids. All of the observations suggest that lipid droplets occur in immature cells. This is probably the first instance in which lipid-containing cells have been described in an experimental animal. These cells are not oligodendrocytes, but are much more primitive undifferentiated neurological cells. Their constant occurrence in primate fetuses made hypoxemic and acidotic suggests that lipid accumulation is an early sign of cellular dysfunction. (38 refs.) - *A. C. Schenker.*

University of Washington
Seattle, Washington

3281 **RHODES, P.; Hall, R. T.; & RATRISAWADI, V.** A controlled study of continuous positive airway pressure (CPAP) in infants with the idiopathic respiratory distress syndrome (IRDS). *Journal of Pediatrics*, 83(1):150, 1973. (Abstract)

A controlled study of the influence of continuous positive airway pressure (CPAP) in infants with idiopathic respiratory distress syndrome (IRDS) is described. Patients were admitted alternately into treatment or control groups which met the criteria: a typical reticulogranular radiographic pattern; clinical features of grunting, tachypnea, and nasal flaring; and a PO_2 of less than 60mm Hg with an inspired O_2 concentration of 50% or greater. Control patients received oxygen by hood until they developed prolonged apnea or were unable to maintain a PO_2 of greater than 40mm Hg, or a PCO_2 of less than 80mm Hg on 100% inspired oxygen. They were considered control failures and placed on CPAP or a respirator. A significantly lower mortality rate ($P<0.02$) was found in infants weighing less than 1,500gm in the treatment group than in the control group. One treatment failure placed on a respirator and 3 control failures who received CPAP because of hypoxemia survived. The corrected mortality rate was 7 of 22 and 13 of 19 in treatment and control groups, respectively ($p<0.02$). - *A. C. Schenker.*

3282 **SEFTON, S. M.; SOONTHAROTOKE, C.; & BORER, R. C., JR.** Diagnosis of the respiratory distress syndrom (RDS) by the lecithin/sphingomyelin (L/S) ratio of newborn gastric aspirate. *Journal of Pediatrics*, 83(1):148, 1973. (Abstract)

The lecithin/sphingomyelin (L/S) ratio of newborn gastric aspirate (GA) obtained at birth was investigated as a rapid diagnostic test for neonatal respiratory distress syndrome (RDS). Both amniotic fluid (AF) and GA L/S ratios were performed in 37 infants and mothers, resulting in a linear correlation with respect to L/S ratios over the range of 1.0-5.0. A ratio of less than 1.5 signified an immature lung and RDS. Ratios of GA L/S from randomly sampled infants were compared to clinical outcome with respect to RDS; the GA L/S ratio correctly identified 92 of 92 infants without RDS and 12 of 140 infants, all premature, with RDS. Subsequent studies of phospholipids in gastric contents revealed a poor relationship between the L/S ratios in gastric aspirates and in amniotic fluid. - *A. C. Schenker.*

3283 **KUZEMKO, J. A.; & PAALA, JOSY.** Apnoeic attacks in the newborn treated with aminophylline. *Archives of Disease in Childhood*, 48(5):404-406, 1973.

The administration of aminophylline to 10 preterm babies suffering from idiopathic respiratory distress syndrome (RDS) is described. In 5 babies, aminophylline suppository was active within 7 minutes of administration as judged by a slight increase in heart and respiratory rates. In the other 5 babies no significant effects on these rates were noted, but in 4 the apnoeic spells were shorter and less frequent. All babies could be effectively managed in ambient oxygen concen-

trations of 40% or less. Aminophylline possesses direct stimulant actions on the respiratory and vasomotor centers in the medulla, resulting in the increase of rate and depth of breathing, and acts directly on the myocardium, causing an increase in the force of contraction and cardiac output and a decrease of venous pressure. (7 refs.) - *A. C. Schenker.*

Peterborough District Hospital
Thorpe Road
Peterborough PE3 6DA, Australia

3284 **SHEARER, WILLIAM T.; SCHREINER, RICHARD L.; WARD, SAMUEL P.; MARSHALL, RICHARD E.; STROMINGER, DONALD B.; MCALLISTER, WILLIAM H.; KISSANE, JOHN; & OSGURA, JOSEPH H.** Benign nasal tumor appearing as neonatal respiratory distress: first reported case of nasopharyngeal fibrous histiocytoma. *American Journal of Diseases of Children*, 126(2):238-241, 1973.

The case of a newborn infant with respiratory distress caused by a nasal fibrous histiocytoma is reported. Because the child's clinical status improved, surgical removal of the nasal mass was deferred until he was 8 months old. By electron microscopy, the prominent Golgi complex, moderately abundant rough endoplasmic reticulum, and zone filaments adjacent to the cell membrane in a spindle-shaped cell were found to be characteristic of fibroblasts, while abundant lysosomes and slender cytoplasmic processes were characteristic of histiocytes. This tumor was thought to be primarily a histiocytic tumor with fibroblastic differentiation. It is pointed out that respiratory distress in a neonate can be caused by nonpulmonary lesions, and that nasal and nasopharyngeal tumors must be kept in mind when a tentative diagnosis of choanal atresia is made. (13 refs.) - *A. C. Schenker.*

St. Louis Children's Hospital
St. Louis, Missouri 63110

3285 **SUGARMAN, GERALD I.; RIMOIN, DAVID L.: & LACHMAN, RALPH S.** The facial-digital-genital (Aarskog) syndrome. *American Journal of Diseases of Children*, 126(2):248-252, 1973.

A family in which 2 half brothers and their maternal uncles were affected with the facial-digital-genital (Aarskog) syndrome is reported; this family demonstrates several new components of the syndrome, together with mild manifestations in an obligate heterozygote woman. The facies include hypertelorism, antimongoloid slanting of the palpebral fissures, ptosis, a broad nasal bridge, short stubby nose with a prominent septum, maxillary hypoplasia, and a long philtrum. The thumbs had limited abduction associated with a shortened interdigital web, and radiographs of the feet revealed hypoplasia of the middle and distal phalanges of the second through the fourth toes with fusion of the middle and distal phalanges of the fifth toes. The distinctive genital abnormality consists of a saddle-type scrotum in which the scrotal folds extend around the ventral side of the penis, resembling unfused labia majora. Short stature is also a consistent feature of this syndrome. Two of the affected men were mildly MR. This syndrome appears to be inherited as an autosomal dominant trait with only partial expression in affected women. (9 refs.) - *A. C. Schenker.*

3325 Division Street
Los Angeles, California 90065

3286 **BAUMAN, MARGARET L.; & HOGAN, GWENDOLYN R.** Laurence-Moon-Biedl syndrome: report of two unrelated children less than 3 years of age. *American Journal of Diseases of Children*, 126(1):119-125, 1973.

The observation of the Laurence-Moon Biedl (LMB) syndrome in two unrelated children less than 3 years of age is described and the possibility of early diagnosis is stressed; the main features of this syndrome (obesity, retinal degeneration, genital hypoplasia, polydactyly, and MR) are discussed. Although this syndrome includes retinitis pigmentosa as one of its features, this lesion has been noted in only about 15% of the cases. Hypogenitalism appears to be more frequent in males than in females, according to reports in the literature. Defective mental function has been noted in 70% to 85% of patients and may range from severe to minor degrees of dulness. In addition to these features, deafness, renal abnormalities, cardiovascular system disease, cranial malformations and skeletal defects, and neurologic and psychiatric disorders have been reported. The LMB syndrome has been regarded as hereditary in

nature, but disagreement has surrounded the character of this heredity. (10 refs.) - *A. C. Schenker.*

Children's Neurology Service
Massachusetts General Hospital
Boston, Massachusetts 02114

3287 BOWEN, FRANK W.; CHANDRA, ROMA; & *AVERY, GORDON B. Pulmonary interstitial emphysema with gas embolism in hyaline membrane disease. *American Journal of Diseases of Children*, 126(1):117-118, 1973.

An infant with severe hyaline membrane disease (HMD), who required assisted ventilation and who died of massive gas embolization, is described. It is believed that the patient represents interstitial emphysema with intravascular gas embolism. This complication may have resulted either from progression of the infant's lung disease or mechanical failure of the respirator system. The infant received approximately 133 hours of positive end-expiratory pressure in treatment of HMD, and progressed to bronchopulmonary dysplasia and finally developed interstitial emphysema with air embolism. The experimental evidence points toward high airway pressures as the key event leading to this complication. (10 refs.) - *A. C. Schenker.*

*Children's Hospital of the
District of Columbia
2125 13th St., NW
Washington, D.C. 20009

3288 BRISSENDEN, JANE E.; & LEVY, EDITH P. Prader-Willi syndrome in infant monozygotic twins. *American Journal of Diseases of Children*, 126(1):110-112, 1973.

Concordant monozygotic twins, aged 9 months, are described with the Prader-Willi syndrome. Both twins showed most of the important features of this syndrome, including altered gestational timing, with birth after 36 weeks of gestation, and low birthweight for gestational age. Hypotonia and feeding difficulties were present from the neonatal period; they had short stature, delayed bone age, obesity, psychomotor retardation, strabismus (in one case), small hands and feet, with decreased muscle mass, and EEG abnormalities. Both cases showed a D group chromosome with long, short arms, a defect which is possibly a marker rather than a translocation. The fact that these were concordant monozygotic twins raises the possibility of a genetic cause. (13 refs.) - *A. C. Schenker.*

Montreal Children's Hospital
Montreal 108, Canada

3289 BERMAN, WULFRED; *HASLAM, ROBERT H. A.; KONIGSMARK, BRUCE W.; CAPUTE, ARNOLD J.; & MIGEON, CLAUDE J. A new familial syndrome with ataxia, hearing loss, and mental retardation: report of three brothers. *Archives of Neurology*, 29(4):258-261, 1973.

A familial disorder affecting 3 of 5 siblings in a family in which there is no history of ataxia, hearing loss, or MR, is described. At least 4 syndromes are characterized by hearing loss, ataxia, and MR, differing primarily by their associated anomalies and mode of inheritance. Differences between the patients described and those reported in the literature are enumerated. The central nervous system involvement appears to be widespread, as is manifested by progressive intellectual deterioration, a neural hearing loss, and cerebellar signs, including dysarthria, nystagmus, and ataxia. Signs of upper motor neuron involvement included exaggerated deep tendon reflexes and extensor plantar responses. It is presumed that the disease is autosomal recessive. (14 refs.) - *A. C. Schenker.*

*John F. Kennedy Institute
707 N Broadway
Baltimore, Maryland 21205

3290 Treatment of spina bifida cystica. *British Medical Journal*, 1(5853):565-566, 1973.

Research on treatment of spina bifida cystica has alternated between hope and despair, with the latest hope being primarily invested in the ventriculoatrial shunt. Enormous numbers of such infants have been treated, some unselected for quality of survival. Accordingly, adverse prognostic criteria have been defined to provide a basis for the selection of patients for treatment, principally including thoracolumbar lesions, hydrocephalus, severe paraplegia, severe kyphosis, and

gross congenital anomalies or injuries. The validity of the criteria has been demonstrated in results of treatment. (4 refs.) - *C. Wares.*

3291 WHEELER, TIMOTHY; & GREENE, KEITH R. Breech management with fetal blood sampling. *British Medical Journal*, 1(5856):802-803, 1973. (Letter)

Fetal blood sampling in breech management provides a reliable warning of asphyxia. However, cord compression problems are especially likely to cause asphyxia in the fetus during breech labors, and continuous heart rate monitoring provides more sensitive and immediate information on the fetus' condition than would an intermittent blood sample, enabling quicker correction reaction to such conditions as they might develop. - *C. Wares.*

King's College Hospital Medical
School
London SE 5, England

3292 CUMMINS, C. J. Review of maternal deaths in New South Wales from eclampsia and severe preeclampsia—1961 to 1969. *Medical Journal of Australia*, 1(7):342-345, 1973.

The continued occurrence of maternal deaths attributed to severe preeclampsia, eclampsia, and their complications prompted a review of all deaths from these causes for the period 1961-1969 in New South Wales. There were 30 deaths considered to be directly due to eclampsia and preeclampsia. The figures tend to support the view that the lowest rate of deaths from these conditions occur in the second and third pregnancies. Nearly two-thirds of the maternal deaths in this period involved patients with preexisting systemic disease, and of these 79% had hypertension. Early diagnosis and efficient treatment will prevent most deaths from these conditions. It would appear that eclampsia and preeclampsia are relatively more common in the older woman of high parity with preexisting hypertension and renal disease who is also obese and may have a multiple pregnancy. - *A. C. Schenker.*

Box 31, George Street North P.O.
Sydney, New South Wales 2000
Australia

3293 BROWN, DENNIS G.; & GOLDENSOHN, ELI S. The electroencephalogram in normal pressure hydrocephalus. *Archives of Neurology*, 29(1):70-71, 1973.

The possible relationship between the marked third ventricular dilatation, seen in normal pressure hydrocephalus, and the occurrence of projected rhythms in the electroencephalogram (EEG) was examined in 11 patients with normal pressure hydrocephalus. Six patients had normal and 5 had abnormal records. In only one patient was there any monorhythmic frontal delta present, and this was rare for less than 2% of the recording time. A combination of both acute and subacute dilatation of the third ventricle and increased intracranial pressure may be required to generate projected rhythms. (21 refs.) - *A. C. Schenker.*

155 West 68th Street
New York, New York 10023

3294 TRIGG, MICHAEL E.; GEIER, MARK R.; & MERRIL, CARL R. [Screening for genetic disease.] *New England Journal of Medicine*, 289(14):755, 1973. (Letter)

Reference is made to Lappe and coworkers' article "Ethical and social issues in screening for genetic disease" by Dr. Fred Rosner, who believes that genetic disease will not prove amenable to vaccine-like treatment. Since the introduction of DNA into simple organisms has become routine in the laboratory, and recent evidence suggests that viruses are capable of introducing genetic information into eukaryotic cells, it is conceivable that this information may be applied to the treatment of genetic disease. In a further reference to the evolutionary effect on a population of its genetic load, in which Dr. Rosner suggests that the carrier state for many hereditary diseases may be essentially harmless, it is emphasized that carriers of some of these diseases may even possess evolutionary advantages; the heterozygotes for the genes may possess selective advantages. Cystic fibrosis and Tay-Sachs disease are possible examples of such conditions. (15 refs.) - *A. C. Schenker.*

National Institute of Mental Health
Bethesda, Maryland

3295 WIEDEMANN, H.-R. E.M.G. syndrome. *Lancet*, 2(7829):626-627, 1973. (Letter)

A polygenic inheritance (rather than an autosomal

dominant) is suggested as worthy of consideration for the exomphalos-macroglossia-gigantism (E.M.G.) syndrome. The practical importance of this syndrome is that severe hypoglycemia can occur in the neonatal period and during infancy, and in about a sixth of cases the macroglossia is at first misinterpreted as a symptom of hypothyroidism. In at least 21 out of 162 E.M.G. cases, hemihypertrophy has developed. In 11 affected children, 10 intra-abdominal and 2 extra-abdominal tumors have developed, 10 of them malignant. Four of these children were hemihypertrophic. (15 refs.) - *A. C. Schenker.*

University Department of Pediatrics
Kinderklinik
Frobelstrasse 15-17
23 Kiel, West Germany

3296 **SVENNINGSEN, N. W.; & BLENNOW, G.** Continuous positive airway pressure and noise level. *Lancet*, 2(7829):623, 1973. (Letter)

In connection with the risk of high noise levels inside the box used for treatment of idiopathic respiratory distress syndrome by increasing the transpulmonary pressure, a specially designed unit is described. In this unit for continuous positive airway pressure (C.P.A.P.), a specially designed face chamber allows the position of the ears to be outside the box. Hence, the sound levels experienced by neonates treated with the C.P.A.P. face chamber do not exceed those during ordinary incubator care. (5 refs.) - *A. C. Schenker.*

University Hospital
S-221 85 Lund, Sweden

3297 **FIELD, BARBARA; AND KERR, CHARLES.** Potato blight and neural-tube defects. *Lancet*, 2(7827):507-508, 1973. (Letter)

Evidence conflicting with Renwick's hypothesis regarding the relationship between potato blight and neural-tube defects is presented. The mean rate of anencephaly and spina bifida (A.S.B.) in New South Wales (NSW) for the years 1965 through 1972 was 2/1000 births. Potato blight occurs sporadically in the autumn growing season, and serious epidemics are unusual. Tabulation of the NSW data suggests no relationship between A.S.B. incidence and indices of potato consumption or potato blight. No hint of any increase conforming to hypothetical conditions was noted on analysis of monthly variations, or in comparison of 2 sets of 3 years representing absence and presence of potato blight, respectively. (13 refs.) - *A. C. Schenker.*

University of Sydney
Sydney, N.S.W. 2006, Australia

3298 **FITZSIMMONS, JOHN S.** Laryngeal stridor and respiratory obstruction associated with myelomeningocele. *Developmental Medicine and Child Neurology*, 15(4):533-536, 1973.

Etiology and treatment of laryngeal stridor and airway obstruction associated with myelomeningocele and hydrocephalus are described. In those patients in whom adequate direct laryngoscopy has been performed, the stridor and respiratory obstruction have been found to be due to abductor paralysis of the vocal cords, in varying degrees. Some patients may have only hoarseness or mild stridor, while others may develop life-threatening airway obstruction requiring immediate treatment. The impairment of the vagus nerve is involved in this condition; common to most of the possible mechanisms is the Arnold-Chiari malformation and raised intracranial pressure in which there is caudal displacement of the brain stem and of the brain-stem blood vessels. In infants with vocal cord involvement but without serious impairment of their airway, close observation prior to neurosurgical treatment may suffice, but where there is obvious airway difficulty, endotracheal intubation is essential and immediate neurosurgical intervention is indicated. Supratentorial decompression will in most cases cause relief of symptoms. In some patients ventricular taps may serve as an emergency measure, but in the majority of cases a shunt procedure is necessary. (17 refs.) - *A. C. Schenker.*

City Hospital
Hucknall Road
Nottingham NG5 1PB, England

3299 **JAMES, A. EVERETTE, JR.; STRECKER, ERNST-PETER; NOVAK, GARY; BURNS, BARRY.** Correlation of serial cisternograms and cerebrospinal fluid pressure measurements in experimental communicating hydrocephalus. *Neurology*, 23(11):1226-1233, 1973.

Changes in cerebrospinal fluid (CSF) were determined as hydrocephalus developed in dogs with experimental communicating hydrocephalus in order to evaluate the interrelation of CSF movement, pressure, and ventricular size. The histologic findings in the periventricular area suggest edema that would correlate with the transependymal passage of fluid. Correlation of ventricular size at pneumoencephalography and cisternography, radiopharmaceutical stasis, and the previously related observations suggest that with development of significant ventricular enlargement in communicating hydrocephalus, the ventricles provide an alternative pathway for subsequent CSF absorption. The average CSF pressure in an alert dog unrestrained was 13.5-15cm of water; during motion it was 19.5-23cm water, and with temporary hypoxia, 40-47.5cm water were obtained. The results indicate that increased ventricular size, transependymal radiopharmaceutical migration, and decline in CSF pressure in animals with communicating hydrocephalus are related. (20 refs.) - *A. C. Schenker.*

The Johns Hopkins Hospital
Baltimore, Maryland 21205

3300 **LOVELL, KEITH E.** The effect of postmaturity on the developing child. *Medical Journal of Australia*, 1(1):13-17, 1973.

The effect of postmaturity on the infant during the perinatal period and the first year of life was studied in 77 infants with a gestation between 42 and 43 weeks. There was a significant increase in fetal distress in the postmature babies and a similar significance as the degree of postmaturity increased, and the same trend occurred for the presence of meconium in the liquor. There was also a significant increase ($P<0.001$) in the rate of deliveries by cesarean section in the postmature babies compared with controls. There was a higher incidence of fetal distress and asphyxia as the degree of postmaturity increased. After birth, careful neurological examination, assessment of subcutaneous wasting, and the position of the baby's thumbs will indicate those babies requiring supervision and follow-up. (21 refs.) - *A. C. Schenker.*

Queen Victoria Hospital
Adelaide, Australia

3301 **LEWIS, C. J.; *STEVENS, L. H.; AND WELLS, J. VIVIAN.** Serum immunoglobulin patterns in the first year of life in normal and low birth weight infants. I. Relationship to birth weight. *Medical Journal of Australia*, 1(6):282-288, 1973.

Serum levels of IgG, IgA, and IgM were measured in 87 mothers and 103 low birthweight infants throughout the first year of the infant's life; this was part of a study where special attention was given to prenatal background, socioeconomic status, postnatal response to infections, viral antibody, and general development. The infants were divided into 5 groups on the basis of 500gm gradients of birthweight from 1,500gm and less to over 3,000gm. Blood samples were taken at birth from mother and infant; from the infant at ages 10 days, 4 weeks, and at intervals of 1 month thereafter. The mean levels of the 3 immunoglobulins in the mothers were not significantly different from those of nonpregnant female controls. Of the 60 matched samples of maternal and infant cord serum, IgG levels in the latter were lower in 35%; the correlation between low birthweight and IgG levels in the infants was positive up to 3,000gm, at which point the IgG level appears to drop. IgA could be measured in only one specimen of cord serum; it was not possible to measure this in trace amounts between 0 and 3mg. IgM was found at a concentration greater than 5mg/100ml in 39 of the cord serum specimens. Significant differences between the groups in their immunoglobulin patterns over the first year of life were few, apart from the differences reflecting the different initial cord serum levels of IgG. (45 refs.) - *A. C. Schenker.*

3302 **OBENCHAIN, THEODORE G.; AND STERN, EUGENE.** Continuous pressure monitoring in experimental obstructive hydrocephalus: I. The dynamics of acute ventricular obstruction. *Archives of Neurology*, 29(5):287-294, 1973.

Pressure changes in the vascular and ventricular systems immediately following ventricular obstruction were measured in 5 Macaca mulatta monkeys. Obstructive hydrocephalus was produced by dental silicone impression material injected intraventricularly. Ventricular fluid pressure (VFP) varied over short periods of time; during periods of increasing pressure, 2 types of wave pattern were seen: undulating waves associated with periodic

respirations, and monophasic waves associated with hyperpnea. Before ventricular obstruction, the sagittal sinus venous pressure (SSVP) was subatmospheric in 3 monkeys and was lower than the VFP in every instance. After ventricular obstruction, SSVP remained subatmospheric in all except 1 animal, despite a concomitant increase in VFP. All animals except 1 hyperventilated during most of the experiment. Systemic arterial blood pressure decreased slowly from 130mm Hg to 100mm Hg, a rise occurring during the last several hours, when the VFP was greatly elevated. Several of the findings suggest that the progressive brain stem dysfunction is due to rostrocaudal descent of the brain stem and the foraminal impaction, and exaggerated angulation of the cervicomedullary junction supports this suggestion. (17 refs.) - *A. C. Schenker.*

University Hospital
San Diego, California 92103

3303 **MORROW, A. W.** Anencephaly and spina bifida: Possible association with potato blight. *Medical Journal of Australia*, 2(21):1208, 1972. (Letter)

Pending further support for Renwick's hypothesis linking neural tube defects in man to maternal exposure to blighted potatoes, pregnant women would be prudent to avoid potato consumption, particularly the consumption of green potatoes which are high in solanidine content. Primary support for the hypothesis so far has come from an observed relationship in space and time between the occurrence of potato blight and the incidence of anencephaly and spina bifida, although there remain many unexplained epidemiologic exceptions to this pattern. Further examination of recent animal studies demonstrating a teratogenic effect of blight-infected potatoes on the cotton-eared marmoset may shed more light on this phenomenon. (6 refs.) - *N. Mize.*

Australian Drug Evaluation Committee
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MEDICAL ASPECTS — Etiologic Groupings

Convulsive disorders

3304 **JENKINS, RAMON B.; AND RATNER, ARNOLD C.** Diphenylhydantoin and acne. *New England Journal of Medicine*, 287(3):148, 1972, (Letter)

One possible effect of diphenylhydantoin on the skin is acne. A severe case of acne in an epileptic patient on a drug regimen which included diphenylhydantoin showed improvement directly corresponding to decreases in dosage. Nonhydantoin anticonvulsants are recommended for adolescent epileptics. - *C. Wares.*

The Washington Hospital Center
Washington, D.C.

3305 **NISWANDER, J. D.; AND WERTELECKI, W.** Congenital malformation among offspring of epileptic women. *Lancet*, 1(7811):1062, 1973. (Letter)

Computerized data from U.S. Air Force hospitals were examined for the period 1965-1971 from records of 347,097 liveborn infants and their mothers, of which epilepsy was a concomitant diagnosis on 410 maternal obstetric records. Among 413 infants born to epileptic mothers, 17 (4.12%) were malformed; 3 cases of cleft lip/cleft palate were among these births, giving a rate of 7.26/1,000 compared to 1.52/1,000 for all births. Congenital heart defect occurred with a frequency of 4.07/1,000 in the total sample and 12.10/1,000 (5 cases) among the offspring of epileptics. Combined with data collected in Northern Ireland and in Cardiff, a roughly 2-fold increase in risk is estimated for total malformation and a 5-6-fold increase in cleft lip/clept palate. (6 refs.) - *A. C. Schenker.*

Human Genetics Branch
National Institute of Dental Research
National Institutes of Health
Bethesda, Maryland 20014

3306 **LOWE, C. R.** Congenital malformations among infants born to epileptic women. *Lancet*, 1(7793):9-10, 1973.

The role of anticonvulsants is examined in a total birth population, since previous reports were confined to a limited population. The incidence of malformations among 31,877 infants in Cardiff for 1965-1971 was 2.9%; the rate of malformed infants born to 134 women who took anticonvulsants during the final trimester was 6.7%; the rate born to epileptic mothers who did not take anticonvulsants was 2.7%. The difference between the total population and women on anticonvulsants was significant ($P<0.025$) for the number of malformed infants. Only 1 of the 134 infants born to women on anticonvulsants had a hare-lip; the mother had taken 30mg of phenobarbitone twice daily throughout her pregnancy. The cleft lip and/or palate rate for all Cardiff infants was 1.6/1,000. It is concluded that anticonvulsant therapy during pregnancy in epileptic women is not a cause for alarm, bearing in mind that a seizure due to the lack of such therapy might in itself be teratogenic. (6 refs.) - *A. C. Schenker.*

Los Angeles County
University of Southern California
Medical Center
Los Angeles, California 90033

3307 **BUCHANAN, ROBERT A.; TURNER, JANETH L.; MOYER, CARL E.; AND HEFFELFINGER, JOHN C.** Single daily dose of diphenylhydantoin in children. *Journal of Pediatrics*, 83(3):479-483, 1973.

A study to determine whether children with convulsive disorders could receive their daily requirement of diphenylhydantoin as a single dose was conducted in 28 inst children with seizure disorders (excluding petit mal). All of the Ss were receiving approximately 5mg/kg/day of diphenylhydantoin. Following a 4-week baseline observation period, the participants were transferred from their divided dose schedule to a single daily morning dose for a 4-week period; they were then returned to a divided dose period for 3 weeks. None of the patients demonstrated any significant change in seizure control when single daily administration was compared to divided daily administration. Serum levels of diphenylhydantoin obtained 2-4 hours following a single daily morning dose were no different from those obtained at the same time with divided doses; neither was there any difference between the 12- and 24-hour levels for a group of 6 children on a single bedtime dose. The advantage of a single daily dose offers a convenience for the active or busy epileptic patient and helps in motivating him to take the medication. (18 refs.) - *A. C. Schenker.*

Parke, Davis and Company
Ann Arbor, Michigan

3308 **BUTCHER, BILL.** Diphenylhydantoin suspension hazard. *Journal of the American Medical Association*, 221(1):89, 1972. (Letter)

While dangers do exist in the dispensing of liquid drug preparations, suspensions of proven clinical usefulness, such as the 125mg/5ml diphenylhydantoin preparation, should not be discontinued on this account. Since it is a difficult and often unsatisfactory procedure for pharmacists to prepare requested liquid suspensions from solid dosage forms extemporaneously, the solution to dispensing errors lies more properly in continuing physician and pharmacist education. - *N. Mize.*

Good Samaritan Hospital
Phoenix, Arizona

3309 **CARREL, ROBERT E.** Diphenylhydantoin suspension hazard. *Journal of the American Medical Association*, 221(1):89, 1972. (Letter)

To the hazards of 125mg/5ml diphenylhydantoin suspensions already discussed should be added the possibility of either insufficient or excess dosages of medication resulting when the suspension is shaken improperly. - *N. Mize.*

Tri-Counties Regional Center
Santa Barbara, California

3310 **SPELLACY, W. N.** Maternal epilepsy and abnormalities of the fetus and newborn. *Lancet*, 2(7788):1196-1197, 1972. (Letter)

A review of data from recent studies investigating the possible teratogenic effect of seizure medications administered in cases of maternal epilepsy has uncovered a suggestive pattern of associated infant anomalies. Diphenylhydantoin has been found to raise blood glucose levels and lower plasma-insulin levels, features which—when

coupled with known folic-acid alterations—may well be responsible for the observed fetal effects. (2 refs.) - *N. Mize.*

School of Medicine
Biscayne Annex
Miami, Florida 33152

3311 Obstacle to pediatric therapy. *Pediatrics*, 50(3):490, 1972.

Despite official restrictions on the use of diazepam for treatment of status epilepticus in children under 12 years, the drug is currently recommended by several pediatricians and textbooks. Since there are sufficient data to support its effectiveness, the warning label in diazepam packages ought to be removed. (4 refs.) - *N. Mize.*

3312 **WILSON, JOHN T.; & WILKINSON, GRANT R.** Chronic and severe phenobarbital intoxication in a child treated with primidone and diphenylhydantoin. *Journal of Pediatrics*, 83(3):484-489, 1973.

Severe toxicity is reported following prolonged administration of primidone to a 6-month-old infant; the plasma concentrations of primidone-derived phenobarbital and of concomitantly administered diphenylhydantoin (DPH) were followed. The plasma level of phenobarbital was 202 μg/ml. at the time of hospitalization; DPH concentration was 12 μg/ml. Despite the absence of respiratory depression, other signs of central nervous system depression were present. Discontinuance of primidone led to a significant improvement in psychomotor and mental performance. The slow elimination of phenobarbital, prior to first-order elimination 5 days after discontinuance of primidone, was probably a reflection of the elimination of the drug rather than continued formation; it is suggested that initially phenobarbital levels were sufficiently high to saturate the enzyme(s) responsible for metabolism of the drug. This case serves to highlight a current lack of knowledge concerning the dosage requirements, metabolic disposition, and relative toxicity of primidone in children. (27 refs.) - *A. C. Schenker.*

Vanderbilt University
School of Medicine
Nashville, Tennessee 37232

3313 **LINDE, J.; HANSEN, J. MOLHOLM; SIERSBAEK-NIELSEN, K.; & FUGLSANG–FREDERIKSEN, V.** Vitamin D in patients on anticonvulsants. *British Medical Journal*, 4(5839):547, 1972. (Letter)

In contrast to the increase in bone density shown by Dr. Claus Christiansen and others (23 September, p. 738) during treatment with vitamin D in 10 epileptic patients taking anticonvulsants, the significantly lower values of bone density seen in a group of 9 epileptic women as compared with that of a control group of 10 psychiatric patients residing in the same epileptic colony remained unaltered during vitamin D treatment. The discrepancy between these 2 studies may possibly be explained by differences in the sex, age, and duration of anticonvulsant therapy of the epileptics studied. (1 ref.) - *B. J. Grylack.*

Medical Department E
Frederiksberg Hospital
Copenhagen, Denmark

3314 **FEDRICK, JEAN.** Epilepsy and pregnancy: a report from the Oxford Record Linkage Study. *British Medical Journal*, 2(5864):442-448, 1973.

All epileptic women whose pregnancies resulted in a livebirth were identified within the Oxford Record Linkage Study and compared with a control series consisting of 3 control pregnancies resulting in a livebirth for each epileptic S. Controls were matched for maternal age, parity, social class of the father, civil status of the mother, year of and hospital of delivery, and area of residence. The contrast between the 2 series was most striking when maternal age and social class were considered, the 168 epileptic mothers tending to be younger (53% were under age 25 at delivery as compared with 44% of all women at delivery) and to have a higher proportion of lower social class representatives among them. Among the 71,000 total deliveries to women in the area over a 5-year period there were 754 stillbirths (an incidence of 10.6 per 1,000 total births) in contrast with 6 stillbirths among the 223 infants delivered to the epileptic women (an incidence of 26.9 per 1,000). Among epileptics, 13.8% of livebirths had some degree of congenital defect as compared with 5.6% of controls. With the exception of 2 women who developed epilepsy in the first trimester of pregnancy and who were deliv-

ered of infants with major congenital defects, neither the frequency of fits nor the duration of epilepsy seemed to be associated with the frequency of abnormalities in offspring. Rather, the anticonvulsants taken may have had a substantial teratogenic effect. (28 refs.) - *B. J. Grylack.*

Department of the Regius Professor
of Medicine
University of Oxford
Oxford, England

3315 **REILLY, EDWARD L.; & PETERS, JON F.** Relationship of some varieties of electroencephalographic photosensitivity to clinical convulsive disorders. *Neurology,* 23(10):1050-1057, 1973.

Examination of 143 EEG records of 132 patients containing some type of photosensitive response to photic stimulation revealed a correlation between the duration of the response in relation to the flashes and its diagnostic value. Fifty of the 54 patients showed a prolonged response but only 29 of the 56 patients with self-limited responses had a diagnosis of convulsive disorder. Analysis of the data with a chi square indicated a significant relation ($P<0.001$) between the prolonged and self-limited patterns and this diagnosis. Chi square analysis showed patients with photosensitive responses to have a higher incidence of convulsive disorders than the comparison group ($p<0.001$), but the difference was not statistically significant if the age range of both groups was limited to individuals under age 30. Flash-dependent and photomyoclonic responses were not associated with the diagnosis of convulsive disorder. The results indicate that the term "photoconvulsive" is not preferable, and that responses should be defined further as prolonged or self-limited. (18 refs.) - *B. J. Grylack.*

Hermann Hospital
Houston, Texas 77025

3316 **CHEN, RONG-CHI; & FORSTER, FRANCIS M.** Cursive epilepsy and gelastic epilepsy. *Neurology,* 23(10):1019-1029, 1973.

Review of a series of 5,000 consecutive cases of epilepsy studied over a 12-year period revealed a 0.32% (16 cases) incidence of laughing or running epilepsy. Eight patients had laughing epilepsy, 6 had running epilepsy, and 2 had both types. There was no significant sex difference. Seizure onset ranged from 6 months to 27 years, the gelastic or cursive components generally occurring early in the course of the patient's epilepsy. Many of the patients had multiple seizure types, but all of them had definite identifiable psychomotor epilepsy. EEG abnormalities were primarily temporal lobe in location. Posttraumatic inflammatory diseases, degenerative disease, and brain tumor were implicated in the etiology and pathology of these cases. Laughing and running epilepsy are part of the manifestations of complex psychomotor epilepsy, with the origin of the seizure discharge in the limbic system. (45 refs.) - *B. J. Grylack.*

University of Wisconsin Center for
Health Sciences
Madison, Wisconsin 53704

3317 **STARREVELD-ZIMMERMAN, A.A.E.; VAN DER KOLK, W. J.; MEINARDI, H.; & ELSHOVE, J.** Are anticonvulsants teratogenic? *Lancet,* 2(7819):48-49, 1973. (Letter)

Preliminary to studies of folate and antiepileptic drug levels in early pregnancy, a survey was made of the incidence of congenital anomalies in children of mothers with epilepsy. Information was collected about 372 pregnancies in 153 women after the onset of epilepsy. The outcome of these pregnancies was: 66 spontaneous abortions (17%) and an additional 5 which were induced, 9 cases of stillbirth, and 297 live births (including 5 twins). Congenital anomalies were present in 22 (7.4%) of the live births. These were born to 18 mothers (11.8% of all mothers) and consisted of 9 cases of hare-lip and/or cleft palate, 7 cases of congenital heart lesion, and 6 other abnormalities. No malformations were reported in the 50 children born to mothers who, in addition to other antiepileptic drugs, also had used carbamazepine. (12 refs.) - *A. C. Schenker.*

Instituut voor Epilepsiebestrijding
Meer en Bosch
Achterweg 5
Heemstede, Netherlands.

3318 **VIUKARI, N. M. A.; TAMMISTO, P.; & KAUKO, K.** Low serum calcium levels in forty mentally subnormal epileptics. *Journal of Mental Deficiency Research,* 16(3 and 4):192-195, 1972.

Subnormal serum calcium levels are reported in 40 MR epileptics on phenytoin anticonvulsant therapy; both serum calcium and cerebrospinal fluid (CSF) calcium levels were determined in 3 serial determinations. The mean calcium serum levels were: 4.38, 4.42, and 4,27mEq/l, respectively, and the CSF levels were: 2.22, 2.41, and 2.40mEq/1, respectively; the mean serum calcium level of the control Ss was 5.02mEq/1. The difference in the serum levels between patients and controls was significant at $P<0.001$. Since the CSF calcium levels of the patients were normal, it is suggested that the anticonvulsant drug may interfere more with protein binding of calcium than with free biologically active calcium proportion. Since hypocalcemia is associated with epileptic seizures and increased neuromuscular excitability, this can lead to increased drug dosage and thereby to a vicious circle. (9 refs.) - *A. C. Schenker.*

Rinnekoti Institute for the
Mentally Retarded
Majalampi, Finland

3319 Clinical diagnosis of Reye's syndrome. *British Medical Journal*, 3(5785):308-309, 1973. (Editorial)

Clinical, biochemical, and pathological abnormalities in Reye's syndrome are reviewed. The disorder occurs in children aged 2 months to 15 years. The typical case presents with acute encephalopathy with seizures and disturbances of consciousness proceeding rapidly to deep coma. There are no focal neurological signs; mild to moderate hepatomegaly is the only clinical evidence of visceral disease. At biopsy, intense fatty infiltration of the liver is seen, and electron microscopy shows all the hepatocytes are affected by a process which results in pleomorphic, swollen mitochondria, proliferation of smooth endoplasmic reticulum, increase in peroxisomes, and accumulation of triglycerides. Acidosis, hypoxia, and raised serum potassium levels are prominent. An excess of ammonia in the blood is another sign of hepatic injury. Hypoglycemia, hypoxia, acidosis, electrolyte abnormalities, and tendency to bleeding require correction; a low protein diet with sufficient carbohydrate intake, dexamethasone or mannitol infusion, and peritoneal dialysis are advocated. The mortality rate of the disorder is high. (18 refs.) - *A. C. Schenker.*

3320 **BENNETT, DONALD R.; MADSEN, JACK A.; JORDAN, WILLIAM S.; & WISER, WILMER C.** Ketamine anesthesia in brain-damaged epileptics: Electroencephalographic and clinical observations. *Neurology*, 23(5):449-460, 1973.

An evaluation of the effects and safety of ketamine anesthesia for brain-damaged epileptics indicates that it should be used carefully in such cases. Electroencephalographic and clinical observations of ketamine anesthesia administration to 8 epileptics showed distinct features in its application. Electroencephalographic features different from changes produced by conventional anesthetic agents occurred during anesthesia, accompanied by 2 focal seizures and 1 major motor convulsion. These 3 patients also had an increase in seizure incidence during a 3-month posttest period. Findings support the theory that ketamine is a cerebral stimulant and should be used with caution in epileptics. (22 refs.) - *C. Wares.*

University of Utah
College of Medicine
Salt Lake City, Utah

3321 **CEREGHINO, JAMES J.; VAN METER, JOHN C.; BROCK, JOSEPH T.; PENRY, J. KIFFIN; SMITH, LAWRENCE C.; & WHITE, BILLY G.** Preliminary observations of serum carbamazepine concentration in epileptic patients. *Neurology*, 23(4):357-366, 1973.

Serum carbamazepine concentration in epileptic patients has been studied in order to evaluate the relationship of serum concentration to dosage, the variation of serum concentration and rate of elimination from the blood, and the optimal dosage without serious side-effects. Serum levels were determined in test subjects by the Kupferberg method. Optimal dosage was determined to be 1,200mg daily. Carbamazepine appears to be a valuable medication in treatment of epilepsy, but interaction of the drug with other antiepileptic drugs has been reported and should be investigated before the treatment is promoted. (28 refs.) - *C. Wares.*

National Institute of
Neurological Diseases and Stroke
Bethesda, Maryland

3322 **GALLAGHER, BRIAN B.; BAUMEL, IRWIN P.; MATTSON, RICHARD H.; & WOODBURY, SUZANNE G.** Primidone, diphenylhydantoin and phenobarbital: Aspects of acute and chronic toxicity. *Neurology*, 23(2):145-149, 1973.

Toxicity associated with first exposure to primidone in epileptic Ss is related to serum levels of primidone rather than its metabolites, phenylethyl-malonamide or phenobarbital. Prior exposure to phenobarbital, however, results in tolerance to initial toxicity reactions to primidone. Correlations of serum concentration of diphenylhydantoin and phenobarbital with presence or absence of nystagmus, ataxia, or lethargy in epileptics receiving diphenylhydantoin in combination with either phenobarbital or primidone were made. Ss manifesting toxicity had significantly higher serum concentrations of diphenylhydantoin and phenobarbital but a significant number of Ss without toxicity also had equivalent serum concentrations of the drugs. Either the latter Ss have developed a tolerance to the drugs, or they have a higher threshold for exhibiting clinical signs of toxicity. The administration of phenobarbital prior to primidone induces such an observed tolerance. (7 refs.) - *C. Wares.*

Yale University School of Medicine
New Haven, Connecticut

3323 **SHERWIN, IRA.** Suppressant effects of diphenylhydantoin on the cortical epileptogenic focus. *Neurology*, 23(3):274-281, 1973.

Treatment of acute repetitive focal (cortical) motor seizures is difficult, due to the depressant effect on consciousness and cardiorespiratory function of most anticonvulsant agents. Diphenylhydantoin (DPH) may be used for the treatment of seizures without affecting consciousness. The effects of DPH on spontaneous and evoked activity of cortical epileptogenic focuses were studied in cats. DPH exerts direct, differential depressant effects on the cortical focus, those responses depending on repetitive activity in polysynaptic substrates being most sensitive to the effects. Those responses dependent on oligosynaptic mechanisms are somewhat resistant to DPH. Clinical implications of the test results for the use of DPH in treatment of acute seizure states are that DPH has a suppressant effect on posttetanic hyperpolarization in presynaptic terminals, and thus could be extremely useful in treating acute seizures. But associated hazards of irreversibly hyperglycemic coma and/or cardiac arrest when DPH follows administration of large doses of barbiturates must be considered in this choice of treatment. Human-based studies would provide more reliable data for the efficacy of use of DPH for such seizures. (30 refs.) - *C. Wares.*

Harvard University
Boston, Massachusetts

3324 **SERRANO, ERNEST E.; ROYE, DAVID B.; HAMMER, RICHARD H.; & WILDER, B. JOE.** Plasma diphenylhydantoin values after oral and intramuscular administration of diphenylhydantoin. *Neurology*, 23(3):311-317, 1973.

Extensive use of diphenylhydantoin (DPH) in the treatment of seizure disorders includes oral, intravenous, and intramuscular dosing, with considerable controversy concerning the plasma levels obtained and sustained by using each method of dosing. A study of levels consistently found in intramuscular dosing showed 7 or 8 patients on intramuscular DPH with declines in plasma levels, with 3 dropping below seizure control levels. Oral dosing restored desirable plasma values promptly. It was also noted that values elevated above the preintramuscular period followed the cessation of intramuscular treatment, with 1 patient exhibiting signs of DPH intoxication during the postintramuscular dosing period. Crystallization of intramuscular DPH and later slow release is hypothetically the mechanism for both initial reduction in plasma levels and later elevation of values in conjunction with oral dosing. (10 refs.) - *C. Wares.*

Veterans Administration Hospital
University of Florida
College of Medicine
Gainesville, Florida

3325 **WILENSKY, ALAN J.; & LOWDEN, J. ALEXANDER.** Inadequate serum levels after intramuscular administration of diphenylhydantoin. *Neurology*, 23(3):318-324, 1973.

Inadequate serum levels after intramuscular administration of diphenylhydantoin (DPH) in the same dosage as would be required orally have been

widely noted and measured. A study of serum levels of DPH in children after intramuscular and oral administration over a 48-hour period showed that intramuscular DPH does not produce therapeutic serum levels even with a slow rise in serum DPH concentrations. Oral administration of the drug more than tripled the serum DPH level. Metabolism of DPH depends on serum level and is unrelated to the route of administration. In an associated experiment with rabbits, it was demonstrated that intravenous dosage of DPH produces a higher and faster serum level than oral or intramuscular dosage. Intravenous administration of DPH is to be preferred to produce therapeutic serum levels in seriously ill or unconscious patients, with oral and/or intramuscular doses subsequently administered to sustain the desired serum level. (11 refs.) - *C. Wares.*

The Research Institute
The Hospital for Sick Children
Toronto, Canada

3326 WILKINSON, HAROLD A. Epileptic pain: an uncommon manifestation with localizing value. *Neurology*, 23(5):518-520, 1973.

Epileptic pain is an uncommon manifestation in the absence of other manifestations of the disease. When pain is the sole seizure manifestation, diagnosis may be extremely difficult. Two patients reporting episodic pain were associated with more common epileptic manifestations by careful study, and both responded to treatment with anticonvulsants. Parietal localization was confirmed in both patients. Epileptic pain may be seen to have localizing value within the cerebral hemisphere, usually implicating the high parietal or parietal parasagittal area. (8 refs.) - *C. Wares.*

Harvard Neurosurgical Service
Beth Israel Hospital
Boston, Massachusetts 02215

3327 BOOKER, HAROLD E. Serum concentrations of diazapam in subjects with epilepsy. *Archives of Neurology*, 29(3):191-194, 1973.

Serial determinations of serum diazepam concentrations were performed in epileptic Ss undergoing the diazepam deactivation test, and the results were correlated with the effects on the epileptiform discharges. The results were also compared to the serum concentrations in patients taking oral maintenance doses of diazepam. In 19 tests the mean value of the serum diazepam 20 minutes after the injection was 50% of the 5–minute value. In a few Ss up to 60 minutes after the injection, the results indicated a much slower rate of decline after 20 minutes. By 15 minutes after injection, 17 of 19 values were in the range seen in the Ss on the oral regimen (n = 10). The results confirm the sensitivity of photoconvulsive responses, but with regard to nonphotosensitive Ss, suppression of spontaneous specific paroxysmal discharges was not a function of the clinical EEG classification. The coefficient of correlation between peak serum concentration and dose in mg/kg was 0.6, so that unless serum concentrations are actually measured, predictions about them based on dose would not be highly accurate. The failure of diazepam orally to control clinical seizures in some Ss is due to the lower serum concentrations achieved on standard oral doses; either more frequent or higher doses of diazepam or benzodiazepines might be more effective. (10 refs.) - *A. C. Schenker.*

1954 E. Washington Avenue
Madison, Wisconsin 53704

3328 WASTERLAIN, CLAUDE G.; & PLUM, FRED. Vulnerability of developing rat brain to electroconvulsive seizures. *Archives of Neurology*, 29(1):38-45, 1973.

The influence of epileptic seizures on brain and body growth at critical stages of development was studied by subjecting young rats (n = 148) to one daily electroconvulsive seizure (ECS) for 10 consecutive days. Brain weight was significantly decreased, compared to that of controls, in rats shocked neonatally (-14%) or before and during myelination (-8%). The postmitotic brain of older animals underwent no significant reduction in weight, in spite of more intense convulsions. Total brain DNA and cell number were reduced in the neonatal group by 14.5% and 21%, respectively, but no significant modifications were observed in either parameter in the other animals; there was a decrease in RNA and cholesterol in the neonatal group, indicating that brain cell number was curtailed but that cell size was not modified. Neonatal seizures produced a highly significant fall in the number of brain cells at the age of 30 days, at which point the cell

loss is likely to be permanent. The cell loss after neonatal ECS may affect neuronal and/or glial cells. Extrapolation of these results to humans is purely conjectural, but attention is drawn to the very active cell division in the human brain until 1 year of age; selective vulnerability to seizures might be a factor in humans as well. (54 refs.) - *A. C. Schenker.*

Cornell University Medical College
New York, New York 10021

3329 MATTSON, RICHARD H.; GALLAGHER, BRIAN B.; REYNOLDS, EDWARD H.; & GLASS, DAVID. Folate therapy in epilepsy: *Archives of Neurology*, 29(2):78-81, 1973.

The effect of folic acid therapy on 49 epileptic patients was studied over a 6-month period, and careful psychological evaluation was obtained in relation to this treatment. Folic acid treatment did not affect either seizure frequency or the EEG and did not exacerbate the seizures, as reported by some investigators. There was a notable decrease in serum and cerebrospinal fluid (CSF) diphenylhydantoin and phenobarbital concentrations during the course of folic acid supplementation. The psychological tests failed to reveal any cognitive or personality deficiencies that were measurably improvable with folic acid supplementation. The results indicate that folic acid is not readily transported from blood to CSF. However, 5-methyltetrahydrofolate readily enters the CSF, and presumably the anticonvulsant drugs interfere with the conversion of folic acid to 5-methyltetrahydrofolate. The failure to document psychological changes with folic acid treatment does not negate the concept that folate deficiency may be important for mental functioning. Too few patients were treated with leucovorin to allow any statements about changes in mental functioning. (27 refs.) - *A. C. Schenker.*

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West Haven, Connecticut 06516

3330 BOROFSKY, LEATRICE G.; LOUIS, SIDNEY; KUTT, HENN; & ROGINSKY, MARTIN. Control rate in diphenylhydantoin therapy. *Journal of Pediatrics*, 83(2):349-350, 1973.

In reply to the criticism offered by Livingston and Berman with respect to the control of epileptic patients with diphenylhydantoin, it is pointed out that the control was arbitrarily defined as 80% reduction of seizure frequency, and that care was taken to indicate which patients were on more than a single drug, and where the relationship between control and effectiveness of the drug was uncertain. The data with regards to dosages for children do vary, some requiring a greater dose (milligrams/kg) to produce a given serum level. This is not uniform, and some small children do have conventional dose/level relationships. In regard to the validity of accepting diphenylhydantoin levels up to but not exceeding 20 μgm/ml, this applies to smaller nonambulatory children, but the dose is advanced to effectiveness in older children. - *A. C. Schenker.*

Nassau County Medical Center
East Meadow, New York 11554

3331 LIVINGSTON, SAMUEL; & BERMAN, WULFRED. Control rate in diphenylhydantoin therapy. *Journal of Pediatrics*, 83(2):348-349, 1973. (Letter)

A control rate of 75% in seizures attributable to diphenylhydantoin, as stated by Borofsky and associates, is questioned. Experience with approximately 15,000 patients treated with this drug over the past 35 years did not yield such high rates of control, the results obtained being in the neighborhood of 50%, a figure which is in accord with that reported by Buchanan and Allen. Analysis of the data submitted by Borofsky and associates reveals that any patient who experienced a reduction of more than 80% in seizure frequency was considered to be clinically controlled, a finding which is not really justified, since only patients who have been rendered completely free of attacks come under this heading. Furthermore, 14 patients who were considered "controlled" received other anticonvulsants in addition to diphenylhydantoin; also their findings in the dosage for children are in conflict with our results in thousands of patients. The authors' statement that diphenylhydantoin therapy is terminated in uncontrolled patients when the drug blood concentration reaches 20 μgm/ml is puzzling, since most patients are maintained on higher levels for prolonged periods of time without untoward effects. (6 refs.) - *A. C. Schenker.*

3332 **KAPUR, R. N.; GIRGIS, S.; LITTLE, T. M.; & *MASOTTI, R. E.** Diphenylhydantoin-induced gingival hyperplasia: its relationship to dose and serum level. *Developmental Medicine and Child Neurology*, 15(4):483-487, 1973.

The relationship between dosage and blood levels of diphenylhydantoin (DPH) and the degree of gingival hyperplasia was studied in 227 MR patients suffering from epilepsy. The degree of gingival hyperplasia was assessed by 2 examiners without knowledge of the dose-level of DPH. Some degree of gingival hyperplasia was found in 152 patients (67%); 78.2% of patients who were taking DPH doses in the recommended range (3-8mg/kg/day) developed gingival changes. Patients who had serum levels of DPH in the recommended range (10-20mg/l) also developed such changes, the incidence being 93.2%. It is important that dental treatment be available to all patients on this drug. (17 refs.) - *A. C. Schenker.*

*Department of Pediatrics
Queen's University
Kingston, Ontario
Canada

3333 **ZUCKERMANN, EMIL C.; & GLASER, GILBERT H.** Anticonvulsive action of increased calcium concentration in cerebrospinal fluid. *Archives of Neurology*, 29(4):245-252, 1973.

As part of an investigation of the influence of cerebral ionic environment on epileptic activity, the effects of varying calcium (Ca^{++}) concentrations in the ventricular fluid on induced hippocampal seizures were studied. The experiments were performed on 30 adult cats with implanted electrodes. The results revealed that an increased Ca^{++} concentration in the cerebrospinal fluid (CSF) has a strong anticonvulsant effect; that this ion can play an important role in the epileptic reactivity of neurons was further confirmed in a situation where Ca^{++}-free perfusion increased epileptic excitability. The long after-effects of increased Ca^{++} in the CSF also suggest a relatively stable combination of this ion with certain cellular components from which it is slowly released. The actions of K^{+} (within extracellular space) and Ca^{++} on epileptogenic reactivity to electrical stimulation are in opposite directions, and in a perfusion in which both ions were raised, the effect of Ca^{11} prevailed. (31 refs.) - *A. C. Schenker.*

Yale University School
of Medicine
New Haven, Connecticut 06510

3334 **MELDRUM, BRIAN S.; VIGOUROUX, ROGER A.; & BRIERLEY, JAMES B.** Systemic factors and epileptic brain damage: prolonged seizures in paralyzed, artificially ventilated baboons. *Archives of Neurology*, 29(2):82-87, 1973.

In order to evaluate the role of systemic factors in the causation of brain damage shortly after an episode of status epilepticus, similar seizures were induced in *Papio papio* in the presence of peripheral motor paralysis and artificial respiration. The experiments were performed in 4 males and 4 female animals; prolonged electroencephalographic (EEG) seizures were induced by the injection of 0.5-1.4mg/kg bicuculline. In spite of the paralysis and the mild secondary physiological changes, ischemic cellular changes occurred selectively in neurons in the neocortex, thalamus, and hippocampus. Such changes are the end result of disturbance of cellular energy metabolism. Only slight metabolic acidosis occurred, and there is no evidence that this can contribute to ischemic changes. It is therefore not possible to attribute the changes observed to known systemic consequences of the seizure. In clinical practice, energetic maintenance of respiratory and cardiovascular status, prevention of hypoglycemia, reduction of body temperature, and muscular paralysis are likely to delay the occurrence of brain damage. (19 refs.) - *A. C. Schenker.*

Institute of Psychiatry
De Crespigny Park
London SE5 8AF, England

3335 **KEIPERT, JAMES A.** A new form of sensory precipitation epilepsy: Epilepsy precipitated by undressing. *Medical Journal of Australia*, 2(20):1124-1126, 1972.

Exposure of the skin resulting from partial or complete undressing precipitated epileptic convulsions in a female infant. Sensory precipitated seizures of this type have never before been

reported. The child was treated with phenobarbitone, diazepam, and phenytoin, which rendered the convulsions less frequent, but did not completely control them. Following a period of several weeks in which the infant was bathed and undressed as little as possible, however, there was gradual improvement. The child's height, weight, and general development improved, and by the age of 6 months no further convulsions were occurring, despite the cessation of medication. (8 refs.) - *N. Mize.*

421 St. Kilda Road
Melbourne, Vic. 3000, Australia

3336 **MILLICHAP, J. GORDON,** Treatment of convulsive disorders. *New England Journal of Medicine*, 287(2):105, 1972. (Letter)

Dr. Lewis' criticism of my recent article on the drug treatment of convulsive disorders calls attention to omissions made necessary by space limitations. Specifically, the International System of Classification of Epileptic Seizures was not mentioned because it is misleading and bears little relationship to the therapeutic classification of epilepsies. Acetazolamide was referred to as the drug of choice in the treatment of petit mal because of its confirmed anticonvulsant properties demonstrated through 20 years of use, and because it is less toxic than ethosuximide. Similarly discussion of gas-liquid chromatography was omitted because it is not readily available to the average practitioner. - *N. Mize.*

Northwestern University
Medical School
Chicago, Illinois

3337 **LEWIS, JAMES A.** Treatment of convulsive disorders. *New England Journal of Medicine*, 287(2):105, 1972.

Significant omissions in Millichap's highly opinionated article on drug treatment of convulsive disorders make it an unsatisfactory reference for the inexperienced physician. Particularly glaring is the lack of any reference to the value of gas-liquid chromatography in determining anticonvulsant blood levels. Additionally, the author's reliance on the outdated and illogical symptomatic classification of the epilepsies completely ignores the more modern pathophysiologic classification system. Also debatable is the emphasis on acetazolamide as the drug of choice in treating petit mal; more widely used now is ethosuximide. (2 refs.) - *N. Mize.*

Veterans Administration Hospital
San Diego, California

3338 ***BOROFSKY, LEATRICE G.; LOUIS, SYDNEY; & KUTT, HENN.** Diphenylhydantoin in children: pharmacology and efficacy. *Neurology*, 23(9):967-972, 1973.

Efficacy of diphenylhydantoin (DPH) as an anticonvulsant in children with epilepsy depends upon 3 drug-effect relationships: total daily dosage to serum DPH level, individual metabolism of DPH, and serum and dosage levels to positive control of seizures. Study of long-term therapy with DPH in a group of 53 epileptic children revealed a response of 70% to DPH therapy, with serum levels 1-3 times the numerical value of the dosage. Excretion of HPPH in these Ss ranged 59-88% of the total daily dosage. The remaining 30% of the patients exhibited unusual DPH metabolism or drug abuse. A positive relationship between serum DPH level and control of seizures was established in 10 patients. An efficacious therapeutic range of serum level in children can thus be defined by levels below toxicity and above the standard response level. (10 refs.) - *C. Wares.*

*Nassau County Medical Center
East Meadow, New York

3339 **VOLPE, JOSEPH.** Neonatal seizures. *New England Journal of Medicine*, 289(8):413-416, 1973.

The clinical features, etiology, prognosis, and treatment of neonatal seizures are discussed. Multifocal clonic seizures are manifested by clonic movements of one or another limb in a nonordered fashion, whereas focal clonic seizures are well localized. Tonic seizures resemble the decerebrate posturing of older patients, but stertorous breathing, eye signs, or occasional clonic movements stamp them as convulsions. Myoclonic seizures are usually synchronous, with single or multiple jerks of flexion of limbs.

Jitteriness is also a characteristic disorder of the neonatal period. Perinatal complications, cerebral contusion, and intracranial hemorrhage account for most cases of seizures; of the perinatal complications, anoxic or ischemic injury accounts for the large majority. Metabolic disturbances are the next most frequent causes of neonatal seizures; they include hypoglycemia and hypocalcemia. Infection, developmental disorders, and withdrawal from narcotics represent other relevant categories of etiology. X-ray films, EEGs, and other laboratory tests are used for diagnosis. Prognosis depends on the neurologic involvement and ranges from a 10-90% chance of survival. Urgent treatment is important, but overtreatment should be avoided; the most important step is the specific diagnosis, which must be made without delay. (12 refs.) - *A. C. Schenker.*

Washington University School
of Medicine
St. Louis Children's Hospital
St. Louis, Missouri 63110

3340 **FALCONER, MURRAY A.** Reversibility by temporal-lobe resection of the behavioral abnormalities of temporal-lobe epilepsy. *New England Journal of Medicine*, 289(9):451-455, 1973.

Surgical intervention in more than 250 patients with temporal-lobe epilepsy is reviewed. The criteria for surgery were: the failure of the patient to respond to drug therapy, the absence of a demonstrable space-occupying lesion, and an EEG spike-discharging focus, either confined to one temporal lobe or strongly predominant on the side to be excised. A definite pathological substrate involving neurons has been demonstrated in 80% of cases. The best results, both in relief of epilepsy and in improvement of social adaptation, were obtained whenever mesial temporal sclerosis was disclosed at operation, whereas the worst results were obtained with the nonspecific lesions. Inter-ictal aggression was the most common single psychiatric abnormality seen in the present review. Among the 100 patients operated on in one series evaluated, there were 12 with psychosis; in this series there were 47 cases of mesial temporal sclerosis and 24 hamartomas. Two of the 3 schizophrenic patients had hamartomas. It is submitted that a clinician confronted with a patient who has both temporal-lobe epilepsy and schizophrenia should think of hamartoma or tumor as the likely substrate. (26 refs.) - *A. C. Schenker.*

Maudsley Hospital
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London SE5, 8AZ, England

3341 **MONSON, RICHARD R.; ROSENBERG, LYNN; HARTZ, STUART C.; SHAPIRO, SAMUEL; HEINONEN, OLLI P.; & *SLONE, DENNIS.** Diphenylhydantoin and selected congenital malformations. *New England Journal of Medicine*, 289(20):1049-1052, 1973.

The frequency of selected malformations, previously identified in the literature as being related to diphenylhydantoin use, was reviewed in over 50,000 pregnancies to determine whether the rate was higher in infants exposed to the drug *in utero*. The rate of congenital malformations in children exposed before birth to daily anticonvulsant use during the first 3 months of pregnancy (61/1,000) was significantly higher that the corresponding rate (25/1,000) in children born to women who did not have convulsive disorders. Six of 98 children exposed before birth to early, regular use of diphenylhydantoin had congenital malformations; on the basis of the control children, about 2.5 were expected, so that no more than 3.5 malformations/100 exposed children can be estimated to be caused by this drug. Clinicians should not be dissuaded from administering diphenylhydantoin if this drug is needed to control convulsions adequately. (13 refs.) - *A. C. Schenker.*

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Waltham, Massachusetts 02154

3342 **HILL, REBA MICHELS.** Teratogenesis and antiepileptic drugs. *New England Journal of Medicine*, 289(20):1089-1090, 1973.

Malformations in infants exposed to anticonvulsant therapy during embryogenesis are discussed. Monson and his colleagues have studied a series of 50,951 infants, gleaned from the Collaborative Study on cerebral palsy, MR and other neurological and sensory disorders of infancy and childhood. From this series, 5 groups of infants were identified ranging from those exposed to diphenylhydantoin early and late in gestation to

those born to patients with seizures and not exposed to diphenylhydantoin and those born to patients without seizure. The results thus concerned the infant malformation rate associated with exposure to a single anticonvulsant agent during embryogenesis; Monson and others have reported that the risk for a drug-treated gravid seizure patient to bear a malformed infant is 2-3 times greater than that for a control patient. Cleft lip and/or cleft palate was the most frequent anomaly observed. Information is mounting on the effect of diphenylhydantoin in the human being, ranging from chromosome breakage, carcinogenesis, depression of cellular and humoral immunity, folic acid deficiency, and other metabolic anomalies. (8 refs.) - *A. C. Schenker.*

St. Luke's Episcopal Hospital
Houston, Texas 77025

3343 PRENSKY, ARTHUR L.; SWISHER, CHARLES N.; & DEVIVO, DARRYL C. Positive brain scans in children with idiopathic focal epileptic seizures. *Neurology*, 23(8):798-807, 1973.

Use of radioisotopes to localize brain lesions is a practical diagnostic tool for intracerebral malignancies, vascular disease, demyelinative processes, trauma, and infections. Brain scans are not generally helpful for screening idiopathic epilepsy. A report of 4 cases and a review of brain scans from 1968-1970 at St. Louis Children's Hospital indicated that epileptics with generalized seizures do not show a positive lesion scan, while only a few with focal seizures show a positive lesion scan. Some positive scans in the latter group reverted to normal after seizure activity ceased. In general, radioisotope scanning is of little value in epileptic screening, and is definitely inferior to evidence gained from clinical history or examination. (28 refs.) - *C. Wares.*

Washington University School
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St. Louis, Missouri

MEDICAL ASPECTS – Etiologic Groupings

Chromosomal

3344 SACHDEVA, SHANTA; & SMITH, G. F. Chromosomes in the de Lange syndrome. *Lancet*, 1(7807):829, 1973. (Letter)

The etiology of the de Lange syndrome is discussed. In the families with more than one child with the syndrome, a recessive type of inheritance is proposed, whereas in sporadic cases, a different mode of inheritance is proposed, in which most, but not all, are the result of a new mutation. An alternate explanation is a chromosomal abnormality undetectable by the standard Giemsa staining techniques at that time (1967). An example of this type would be a small chromosomal deletion. However, upon examination of the chromosomes by fluorescent microscopy and by use of the new fluorescent staining procedure, a chromosomal defect could not be demonstrated in any of the de Lange syndrome patients examined. (4 refs.) - *A. C. Schenker.*

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Loyola Hospital
Maywood, Illinois 60153

3345 SHAFER, DAVID A. Banding human chromosomes in culture with actinomycin D. *Lancet*, 1(7807):828-829, 1973. (Letter)

A new banding procedure is described in which the chromosomes are treated in live cells before harvest and fixation. Cultures of peripheral-blood leukocytes are set up with phytohemagglutinin. Approximately an hour before the harvest, colcemid is added to a final concentration of 0.2μm/ml and, at the same time, actinomycin D is added to a final concentration of 5μm/ml. The cells are harvested and slides are prepared with hypotonic medium (0.75M KC1) for 4-5 minutes, followed by 3 changes of fixative (methanol/glacial acetic acid, 3:1). Slides are stained for 5 minutes in Fisher or Harleco Giemsa and rinsed in distilled water. Since the treatment occurs in living cells, the observed banding more clearly reflects natural chromosome structure. If models of chromosome structure continue to evolve from banding studies, the technique may well take on

greater genetic significance than that of other techniques. (16 refs.) - *A. C. Schenker.*

Hospital for Sick Children and
Department of Anthropology
University of Toronto
Toronto, Ontario, Canada

3346 **CHEN, ANDREW T. L.** Interchromosomal fibres in human male meiotic chromosomes. *Lancet*, 1(7807):828, 1973. (Letter)

Interchromosomal fibres observed in heat-treated human male meiotic chromosomes with the light microscope are described. Heat-Giemsa staining was done in meiotic chromosome slides by the method of Yunis *et al.* with slight modification. Interchromosomal fibres were seen at various stages of meiosis, both at pachytene and diskinesis. There was no evidence to suggest that the appearance of interchromosomal fibres in these chromosomes was due to the heat treatment. (7 refs.) - *A. C. Schenker.*

Medical College of Virginia
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Richmond, Virginia 23298

3347 **BHAGAVAN, H. N.; COLEMAN, MARY; COURSIN, DAVID B.; & ROSENFELD, PHILIP.** Pyridoxal-5-phosphate levels in whole blood in home-reared patients with trisomy 21. *Lancet*, 1(7808):899, 1973. (Letter)

Studies about vitamin-B_6 metabolism in patients with the trisomy-21 form of Down's syndrome have thus far been confined to inst patients; a study of pyridoxal-5-phosphate (P.L.P.) levels was conducted in 19 home-reared patients, with 2 sets of normal controls, siblings of patients, and nonrelated controls. A statistical analysis of the whole blood P.L.P. levels showed a difference of $P<0.025$ between the Down's syndrome patients and the controls, but the difference between the control groups was not significant. The siblings had levels intermediate between those of the controls and the patients. This study does not provide unequivocal confirmation of a P.L.P. deficiency state in home-reared Down's syndrome patients. Low dietary intake or inadequate absorption of the vitamin, increased catabolism, or increased excretion might be responsible for such a deficiency. (14 refs.) - *A. C. Schenker.*

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3348 **MEISNER, L. F.; CHUPREVICH, T. W.; & INHORN, S. L.** Chromosome banding in G, with tetracycline. *Lancet*, 1(7818):1509-1510, 1973. (Letter)

Treating peripheral blood cultures with tetracycline to produce G-bands in G_2 is described. Treatment with 10 microgram tetracycline for 2-4 hours is followed by hypotonic treatment in 0.075M KCl for 5 min, fixation in 3/1 methanol/acetic acid, and staining in phosphate-buffered Giemsa. The advantages of tetracycline over actinomycin D and similar compounds for living cells are that it is less toxic, less expensive, and more stable. It has been observed that immersing untreated slides in Carnoy's fixative for 30 min before staining in phosphate-buffered Giemsa resulted in G-bands on the thinner chromosomes. This could suggest that G_2-banding compounds are interacting directly with protein. The fact that all 3 compounds which have been shown to band in G_2 (actinomycin D, azure, and tetracycline) are characterized by a planar molecular structure provides a possibility for an intercalation component, with subsequent base-axis modifications disrupting or preventing DNA-protein associations. (5 refs.) - *A. C. Schenker.*

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3349 **DRAPER, G. J.** Down's syndrome and acute leukemia. *Lancet*, 1(7793):53, 1973. (Letter)

A misinterpretation of the paper from the Acute Leukemia Group B (by Rosner and Lee) regarding the relative incidence of acute myeloblastic and acute lymphoblastic leukemia in Down's syndrome is pointed out. The authors do not question the generally accepted conclusion that the total leukemia incidence rate is greater for children with Down's syndrome than it is in the general population. They do state that the percentage of patients with Down's syndrome who have acute myelogenous leukemia is similar to the incidence

among children with leukemia in the general population. In their review, the authors of the paper omitted the most recent of the publications dealing with this subject, that by Lashof and Stewart, who analyzed 98 cases of mongolism associated with leukemia. Their results anticipated the findings of Rosner and Lee. (3 refs.) - *A. C. Schenker.*

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3350 **STOWENS, DANIEL.** Down's syndrome and acute leukemia. *Lancet*, 1(7793):53, 1973. (Letter)

The incidence of leukemia in children with Down's syndrome, as reported by Rosner and Lee, is contradicted by observations in 456 necropsies on children with leukemia. In this group there were 9 children who had both leukemia and Down's syndrome. Because the incidence of Down's syndrome in the general population is about 1 in 700, this seems to be about a 14-fold increase over the expected occurrence of the 2 diseases simultaneously. - *A. C. Schenker.*

St. Luke's Memorial Hospital
Center
Utica, New York 13503

3351 **FORD, JUDITH H.** Induction of chromosomal errors. *Lancet*, 1(7793):54, 1973. (Letter)

The risk of fetal chromosomal abnormalities may be linked to low maternal estrogen levels very early in pregnancy. When the pH is raised from 15-30min in cultures of actively dividing human fetal fibroblasts, numerical chromosomal errors are induced in up to 60% of the cells, the most significant effect occurring at the time of DNA replication. A decrease in estrogen concentration leads to an increase in pH, which *in vitro* results in numerical chromosomal errors; this may also occur *in vivo*. Observations supporting estrogen involvement include: the fact that gonadotrophin and estrogen levels are lower than average in the menstrual cycles of women at the beginning and end of the reproductive period and that these women have a high incidence of chromosomal error; and if abnormalities in estrogen levels are involved in error induction, the observed high frequency of errors in women with endocrine imbalance is to be expected. Two recent papers have supported this hypothesis. (8 refs.) - *A. C. Schenker.*

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Royal Alexandra Hospital for
Children
Camperdown
New South Wales 2050, Australia

3352 **MEISNER, L. F.; CHUPREVICH, T. W.; INHORN, S. L.; & INDRIKSONS, A.** Microanalysis of chromosomes with X-ray energy dispersion. *Lancet*, 2(7828):561, 1973. (Letter)

The feasibility of microanalysis of metaphase chromosomes by X-ray-dispersion techniques is reported. By using a scanning electron microscopy, coupled with a nondispersive X-ray analyzer, it is possible to visualize chromosomes at magnifications up to x50,000 with a resolution of 15-25nm and then to analyze specific regions down to 0.1 microns. With this technique, it was found in slides treated with cesium chloride before staining that unstained chromosomal regions contained appreciable amounts of cesium, whereas darkly stained regions showed no cesium. This supported the hypothesis that nonstaining was due to competitive inhibition between the dye molecule and cesium. It was also possible to distinguish a band from an interband on the basis of the higher sulfur/phosphorus ratio of banded regions. With selective heavy-atom substitutions or specific post-fixation treatments, it may be possible to correlate metaphase chromosome morphology with composition. (3 refs.) - *A. C. Schenker.*

State Laboratory of Hygiene
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3353 **ALFI, OMAR S.; DONNELL, GEORGE N.; & DERENCSENYI, ANNA.** C-banding of human chromosomes produced by D.N.ase. *Lancet*, 2(7827):505, 1973. (Letter)

A method for obtaining C-bands by treating chromosomes with DNase is described. Human mitotic chromosomes, treated with hypotonic

sodium citrate, fixed in 1:3 acetic acid:methanol, and air-dried, were treated with DNase in the presence of magnesium chloride at 37°C for 15-20 sec. The reaction was arrested in zinc sulfate, and the slides were rinsed and stained with Giemsa in a buffer of pH 6.8 for 10min. C-bands identical with those obtained by the denaturation-renaturation technique were produced. The production of C-bands by D.N.ase treatment is of theoretical interest but is not suitable as a routine diagnostic technique, since relatively minor changes in temperature, timing, or concentration and activity of DNase result in failure to produce C-bands. (8 refs.) - *A. C. Schenker.*

Children's Hospital of Los
Angeles
Los Angeles, California 90027

3354 GALPERIN-LEMAITRE, H.; GUSTOT P.; & LEVI, S. Ultrasound and marrow-cell chromosomes. *Lancet*, 2(7827):505-506, 1973. (Letter)

The effect of ultrasound on golden hamster marrow-cell chromosomes was investigated for possible harmful effects. The animals were sonicated in femoral and humoral areas with 1 and 1.5 W/cm^2, 0.87 MHz, 2 and 5 min continuous waves. In order to avoid all tissue-culture stages, a technique on bone-marrow cells was used. The bone-marrow cells were harvested 1 hour and 24 hours after sonication. The ultrasound energy used was analogous to the dose used therapeutically and much larger than those applied in obstetrics. Comparing a total of 822 sonicated marrow cells to nonsonicated controls, no significant increase in chromosome aberrations was found. These results may be interpreted as a demonstration of the harmless effect of ultrasound from the genetic viewpoint. It should be borne in mind, however, that even much lower doses have a drastic effect on purified DNA. (8 refs.) - *A. C. Schenker.*

Laboratoire de Genetique
medicale
Universite Libre de Bruxelles
Brussels, Belgium

3355 VESTERHUS, PER; & AARSKOG, DAGFINN. Noonan's syndrome and autoimmune thyroiditis. *Journal of Pediatrics*, 83(2):237-240, 1973.

The prevalence of autoimmunity within Noonan's syndrome was found in a study of 10 children with this syndrome and 30 hospitalized children without immune, allergic, or endocrinologic disorders. The levels of IgA and IgM were within normal range in all patients. Of those with Noonan's syndrome, one patient had findings compatible with clinical hypothyroidism, and the findings in another were suggestive of mild hypothyroidism. In 4 patients with Noonan's syndrome, thyroid antibodies were present in significant titers ($\geq$80), whereas the control children had titers <10. It is believed that an etiologic relationship between autoimmune thyroiditis and Noonan's syndrome is unlikely; it is suggested that a disposition to thyroid autoimmunity is another genetically determined factor in this syndrome. The reduced thyroid reserve in patients with thyroid antibodies and the natural course of autoimmune thyroiditis justify regular control of thyroid function in such patients. (26 refs.) - *A. C. Schenker.*

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Norway

3356 MONTELEONE, PATRICIA L.; MONTELEONE, JAMES A.; RIVARD, DONALD; & GRZEGOCKI, JOAN A. Elongated short arm of a G-group chromosome associated with similar phenotypic abnormalities in three patients. *Journal of Pediatrics*, 83(3):473-476, 1973.

An elongation of the short satellited arm of one of chromosomes number 21 is reported in 3 male patients (one MR) with small gonads, small phallus, behavioral problems, and obesity. The elongated chromosome was revealed with Giemsa banding. In all 3 patients the Klinefelter's syndrome was suspected. Other genetic studies included dermatoglyphics, which were normal; genetic marker studies, including blood group antigens, serum protein genotyping for InV and Gm, and haptoglobin and transferrin typing, all of which showed a normal pattern of inheritance; and buccal smears, which revealed no sex chromatin in any of the cells of the patients. Chromosomal analysis of fibroblast cultures of the skin confirmed the finding in the lymphocytes of peripheral blood. (6 refs.) - *A. C. Schenker.*

1465 S. Grand Avenue
St. Louis, Missouri 63104

3357 **HALBRECHT, ISAAC; KOMLOS, LUISE; & SHABTAI, FIORELLA.** Prune-belly syndrome with chromosomal fragment. *American Journal of Diseases of Children*, 123(5):518, 1972. (Letter)

Efforts to associate an extracentric chromosomal fragment causally with various congenital malformations, including the Prune-Belly syndrome, have yielded equivocal results. Recent family cytogenetic studies of an infant with the Prune-Belly syndrome demonstrated the small extra chromosome in blood cultures from the affected propositus and from his phenotypically normal mother and maternal grandfather. Other family members had normal karyotypes. These findings, considered in light of other reports showing a normal karyotype in other cases of the Prune-Belly syndrome, suggest that an association bewteen the two abnormalities may be only coincidental. (2 refs.) - *N. Mize.*

Petah Tiqva
Israel

3358 **SMITH, DAVID W.; & GUTHRIE, ROBERT D.** Reply by authors (The 4p-syndrome). *American Journal of Diseases of Children*, 123(3):264, 1972. (Letter)

Since the Smith-Lemli-Opitz syndrome phenotype can usually be distinguished from that of the 4p-syndrome by the different craniofacies, it is generally not necessary to include both of these disorders in the initial differential diagnosis. Where there is any question, of course, chromosome studies should be undertaken. - *N. Mize.*

3359 **MACE, JOHN W.** The 4p-syndrome. *American Journal of Diseases of Children*, 123(3):264, 1972. (Letter)

Since the Smith-Lemli-Opitz syndrome shares many clinical features with the 4p-syndrome it should have been included, along with the cri-du-chat syndrome, in the differential diagnosis described by Guthrie and associates (*Am. J. Dis. Child.*, 122:421-425, 1972). While it is true that some of the clinical findings are more typical of the one than the other, only chromosomal analysis can make the distinction with any certainty. Additionally, since the Smith-Lemli-Opitz syndrome is most likely inherited as an autosomal recessive trait, this question is of more than simple academic interest. (6 refs.) - *N. Mize.*

3360 **LEE, J.C.; BENDEL, RICHARD P.; & BROOKER, DORIS C.** Aneuploidy in cultured amniotic cells. *Journal of the American Medical Association*, 219(9):1211, 1972. (Letter)

Cultured amniotic cells from a 20-yr-old woman who had previously given birth to a boy with trisomic Down's syndrome showed 4 of the 50 cells cultured to be abnormal, including one cell with an extra G-group chromosome. The woman elected to continue the pregnancy in spite of this finding and eventually gave birth to a normal baby boy with a 46,XY karyotype. Subsequent analysis suggests that the extra G-group chromosome was most probably an aneuploid cell occurring *in vitro*, a finding which only underscores the need for extreme caution in interpreting amniotic cultures for prenatal genetic diagnosis. (4 refs.) - *N. Mize.*

3361 **KOIVISTO, MAILA; SCHRODER, JIM; & DE LA CHAPELLE, ALBERT.** Probable monosomy-21 and partial trisomy. *American Journal of Diseases of Children*, 125(3):426-428, 1973.

The use of quinacrine mustard fluorescence and various denaturation-renaturation procedures in chromosome studies of an infant girl with multiple congenital anomalies demonstrated a probable reciprocal translocation resulting in monosomy 21 and partial trisomy. Both parents had normal karyotypes, indicating that the child's aberration had arisen *de novo*. Blood group inheritance was normal. This complex chromosomal rearrangement would probably have been judged to be only a simple inversion of the G chromosome had conventional cytogenetic techniques been used. The child's abnormal clinical features include hypertelorism, epicanthus, small ears and mouth, high arched palate, flat nasal bridge, short neck, and joint malformations. Psychomotor development was clearly retarded at age 14 mos. (22 refs.) - *N. Mize.*

University of Oulu
Oulu 10, Finland

3362 BETHLENFALVAY, N. C.; LOURO, JOSE M.; & GREER, HARRY A. Translocation trisomy D syndrome 46, XX,D-, t(Dq Dq): Report of a case with a note on the cold-instability of Hb Gower-2. *Pediatrics*, 50(6):928-929, 1972.

Electrophoretic demonstration of the embryonic hemoglobin Gower-2 in a 2-wk-old infant with the clinical and cytogenetic stigmata of D/D translocation trisomy was accomplished on a freshly prepared hemolysate, not subjected to cooling. While an association between persistence of Hb Gower-2 during the first few months of life and trisomy D has been well documented, commonly accepted cold storage practices have made documentation of the cold-unstable hemoglobin difficult. Attention to this problem should further efforts to determine the significance of the related biochemical and cytogenetic data. (8 refs.) - *N. Mize.*

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3363 SCHEINER, ALBERT P. Down's syndrome and institutionalization. *Pediatrics*, 50(1):165-166, 1972. (Letter)

More careful investigation by Dr. Zellweger in his recent book review might have prevented his sweeping generalization suggesting that parents need to be convinced that inst of a child with Down's syndrome is a benefit both to the affected child and his family. Since the incidence of family discord in such situations is often related to the availability of supportive habilitative resources, advocacy of bigger and better inst is an unfortunate oversimplification. (2 refs.) - *N. Mize.*

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3364 ZELLWEGER, HANS. Downs's syndrome and institutionalization. *Pediatrics*, 50(1):166, 1972.

Had Dr. Scheiner read the book review he criticizes more carefully, he would not have so completely misinterpreted its contents. The relevant point is that once parents and physicians have decided to inst a child with Down's syndrome, preventing the development of later parental guilt feelings requires that they be convinced from the start that inst benefits both the affected child and his family. - *N. Mize.*

Kinderspital Zurich
Switzerland

3365 MEISNER, L. F.; CHUPREVICH, T. W.; JOHNSON, C. B.; INHORN, S. L.; & CARTER, J. J. Banding of human chromosomes with cesium chloride. *Lancet*, 1(7794):100-101, 1973. (Letter)

A technique using cesium chloride for G-banding of human chromosomes is presented. Slides prepared by standard methods are immersed in 0.2M cesium chloride (CsCl) in a 65 C waterbath for 5-15 min. These are stained with Giemsa. The similarity of banding to that produced by quinacrine suggests that cesium is enhancing A-T rich regions. It is postulated that under the conditions employed, preferential, reversible A-T thermal denaturation occurs at the same time as cesium is complexing with G-C nucleoprotein. In the staining solution, the A-T instantly reassociates and takes up the Giemsa stain, while the G-C rich nucleoprotein is blocked from stain uptake by competitive inhibition with cesium. (3 refs.) - *A. C. Schenker.*

University of Wisconsin
Madison, Wisconsin 53706

3366 BRINKWORTH, B. The unfinished child. Effects of early home training on the Mongol infant. In: Institute for Research into Mental Retardation, Study Group No. 4. *Mental Retardation and Behavioural Research*. Clarke, A.D.B., and Clarke, A. M., ed. Baltimore, Williams and Wilkins, 1973, p. 213-222.

The severe mental subnormality of Down's syndrome may result in part from the poor interaction of an immature organism and an unhelpful environment. The Down's syndrome child is hypotonic and reflexes can be elicited with strong or repeated stimuli. A program of treatment for 5 Down's syndrome neonates included a high-protein, low carbohydrate diet; special exercises; visual, auditory, and tactile experience; movement in space; and social life. The program was continued for 6 mo, with 12 untreated Down's neonates as controls. At age 6 mo, the treated

group had a mean D. Q. of 102 vs 75 among controls. At age 1 yr, without further treatment, the mean DQs were 81 and 75 for the treated and untreated groups, respectively. These findings demonstrate that some of the deficits of Down's syndrome can be overcome by intensive treatment in early infancy. (18 refs.) - *V. J. Goldberg.*

3367 **RICHMOND, H. G.; MACARTHUR, P.; & HUNTER, D.** Case report: A "G" deletion syndrome antimongolism. *Acta Paediatrica Scandinavica*, 62(2):216-220, 1973.

A 3-yr-old girl exhibited MR, microcephaly, slow growth, hypertonicity, micrognathia, coarction of the aorta, and choanal stenosis. Other findings included fits, keratitis, 45% hemoglobin F, low hemoglobin A_2 (at age 2), a slightly deviated dermatoglyphic pattern, and frequent vomiting. Chromosome analysis revealed a karyotype of mosaic 26,XX/45XX, 21- in a ratio of 15:85. Among 19 reported cases with similar findings of abnormal G chromosomes, MR, and various skeletal, dermal, or mouth abnormalities, only this patient had coanal stenosis. Chromosome G deletion has been associated with either hypertonicity or hypotonicity. Chromosome banding studies need to be performed to determine the exact location of the G-chromosome deletion before it is possible to differentiate the various manifestations of the syndrome. (25 refs.) - *V. J. Goldberg.*

Regional Laboratory
Raigmore Hospital
Inverness, Scotland

3368 **OSTERGAARD, POUL AABEL.** Case report: A girl with recurrent infections, low IgM and an abnormal chromosome number 1. *Acta Paediatrica Scandinavica*, 62(2):211-215, 1973.

A 3-yr-old girl suffered repeated infections caused by polysaccharide microorganisms such as *Haemophilus influenzae, E. coli*, and pneumococci. The patient had low levels of IgM and no serum isoagglutins. There were no antibodies produced against polysaccharide antigens, but the antibody response to protein antigens (tetanus and diphtheria) was normal. Cell-mediated immunity was unimpaired, and biopsy of the lymph nodes revealed a high number of small lymphocytes in the thymus dependent areas of the node. A constriction of chromosome 1 was found by the fluorescein technique. It is possible that some IgM antibodies are directed from chromosome 1 and are eventually modified by the X chromosome. (24 refs.) - *V. J. Goldberg.*

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9200 Skalborg, Denmark

3369 **MULCAHY, MARIE T.; & JENKYN, JOY.** Results of 538 chromosome studies on patients referred for cytogenic analysis. *Medical Journal of Australia*, 2(24):1333-1338, 1972.

Karyotypes were determined in 452 subjects who were referred to the cytogenetic laboratory because of MR, congenital abnormalities, Down's syndrome, family history of MR, or suspected sex-chromosome defects. Cytogenic defects were found in 148 of 452, including 104 cases of Down's syndrome. Three with suspected trisomy 21 (Down's syndrome) had a D/G translocation (1S) or mosaic Down's syndrome associated with milder MR and typical physical findings (2S). Klinefelter's syndrome was found in 3 of 20 suspected cases and in 1 case who was referred because of mild MR and physical defects. Of 24 suspected to have Turner's syndrome, there was 1 with this genotype and 2 children with mosaic Turner's. Other sex chromosome abnormalities included 1 case of 47 XXY syndrome (15 suspected cases) in an intelligent, psychopathic male, 3 cases of enlarged Y chromosome (1S was the father of 2 MR girls and 2S were MR boys), and 46XX in 2 phenotypic males. Autosomal chromosome abnormalities included 1S with 46XX, Bq+, enlarged chromosome 16 in the mother of 2 MR children, and the findings of trisomy E, extra-metacentric chromosomes, possible isochromosome, D/E, C/D, and A/B translocations. Further investigations of the pedigrees in some of the autosomal chromosme defects are being done. (13 refs.) - *V. J. Goldberg.*

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3370 **BUHLER, E. M.; MULLER, H.; OZCOVICS, M.; & STALDER, G. R.** The new technique for chromosome identification in prenatal diagnosis. *Pediatric Research*, 7(1):56, 1973. (Abstract)

New techniques are described for identification of translocations of small chromosome segments. The 2 new methods include: fluorescence after differential staining with quinacrine, and Giemsa staining after denaturation and renaturation. In one family 2 children with symptoms of trisomy 13 were found to have 46 chromosomes; the short arms of a C-chromosome were barely recognizable. The additional piece of chromosome, by the new methods, showed the banding pattern of the distal portion of the long arms of chromosome 13, and the father was shown to have a balanced 13q-; 9p+ translocation. In another child with an apparently normal karyotope as shown with conventional methods, chromosome 9 was found to carry a small translocation shown to be derived from a chromosome 2 in the balanced 2q-; 9p+ karyotype of the father. - *A. C. Schenker.*

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Basel, Switzerland

3371 **FALLSTROM, S. P.; LIEDHOLM, M.; & LUNDBORG, P.** Evidence of altered cerebral serotonin metabolism in Down's syndrome from measurements of cerebrospinal fluid acids. *Pediatric Research*, 7(1):53, 1973. (Abstract)

Levels of 5-hydroxyindole acetic acid (5-HIAA), the major degradation product of serotonin, in the cerebrospinal fluid (CSF) of mongoloid children were compared with levels in nonmongoloid children. No difference was found during the first half year of life, but after that age the mongoloid children had significantly lower levels ($P<0.001$). The results indicate a defective cerebral serotonin metabolism in Down's syndrome. Treatment from birth with serotonin prevented the decrease in CSF levels of 5-HIAA; in most infants the muscular hypotonia decreased. Thus far, a number of the treated children have now reached the age of 18 months, and the comparison with untreated children does not seem to reveal any pronounced difference in the mental development of the 2 groups. - *A. C. Schenker.*

University of Goteborg (Pediatrics)
Goteborg, Sweden

3372 **AULA, P.; LEISTI, J.; & VON KOSKULL, H.** Partial trisomy 21. *Clinical Genetics*, 4(3):241-251, 1973.

Chromosome studies from peripheral blood samples of 425 patients showing clinical features suggestive of Down's syndrome turned up 5 cases of partial trisomy 21. For these 5, Giemsa bands were produced by the ASG method. Two were found to be chromosomal mosaics. In 2 others, the long arm of 21 chromosome was found to be in excess, except for the segment with the characteristic G-band. The fifth was a translocation case, in which most of the band segment and the distal portion of long arm of 21 were in excess. A preliminary attempt to correlate differences in the patient's clinical features with these observed cytological differences revealed typical Down's syndrome features for the translocation case, milder MR and fewer Down's syndrome stigmata in the deletion cases, and a clinically atypical or unusually "mild" case of Down's syndrome, but with the typical level of MR, for the 2 mosaics. (25 refs.) - *N. Mize.*

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3373 **FITZGERALD, P. H.** Ring chromosome 13 and haptoglobin heterozygosity. *Clinical Genetics*, 4(1):25-27, 1973.

Chromosome studies of two more patients with a congenital ring 13 chromosome abnormality, both of whom are heterozygous Hp 2-1, further refute earlier claims suggesting that the haptoglobin locus is situated on the long arm of chromosome 13. In one of these 2 cases, a boy born in 1967, the evidence is particularly striking, since the ring D chromosome is significantly decreased in size, a loss which can only be attributable to greater loss from the distal part of the long arm of chromosome 13. (12 refs.) - *N. Mize.*

Cancer Society of New Zealand
Christchurch, New Zealand

3374 **PLATO, CHRIS C.; CEREGHINO, JAMES J.; & STEINBERG, FLORENCE S.** Palmar dermatoglyphics of Down's syndrome: revisited. *Pediatric Research*, 7(3):111-118, 1973.

The previously described subclassifications of the palmar patterns, the C line terminations, and the resulting R/U ratio were applied to 145 male and 120 female Down's syndrome patients, 108 male

and 114 female normal controls, and, for the simian and Sydney line comparisons, to an additional 203 male and 204 female controls. These categorizations demonstrated strong bilateral and racial polymorphism. The R/U ratio of Caucasian Down's syndrome patients was 10 times higher than that of Caucasian controls, who have a high R/U ratio in comparison with other ethnic populations. Almost all of the patterns in the hypothenar area of the patients were of the ulnar type, in contrast to a predominance of radial loops in this area among Caucasian controls. Significant differences were found between patients and controls in simian lines, particularly the complete type, and C line terminations. (20 refs.) - *B. J. Grylack.*

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3375 **HIGURASHI, MAKATO; TAMURA, TAKASHI; & NAKATAKE, TOSHIHIKO.** Cytogenetic observations in cultured lymphocytes from patients with Down's syndrome and measles. *Pediatric Research*, 7(6):582-587, 1973.

Comparison of the incidence of chromosomal breakage in lymphocytes from 11 patients with Down's syndrome (CA 8 months to 9 years) and 8 control children with normal karyotypes and normal hematologic findings (CA 7 months to 5 years) before and after measles infection has demonstrated the significantly greater sensitivity to viral infection of the chromosomes of cells of affected patients. The number of breaks per cell in Down's syndrome patients after measles infection was 0.191±0.073. This amount was significantly greater than in preinfection cultures (0.040±0.020) and than in control children with measles (0.046±0.024; both $p<0.01$). The difference between the observed and anticipated values for breakage in one particular chromosome was not significant. However, a slight excess of breaks was noted in the long arms of chromosomes D and B in Down's syndrome following measles infection. (19 refs.) - *B. J. Grylack.*

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3376 **HARLAP, SUSAN.** Associations between Down's-syndrome births. *Lancet*, 2(7819):44, 1973. (Letter)

Evidence of clustering in the miscarriages preceding a Down's syndrome birth is suggested by a study of the characteristics of mothers who gave birth to Down's syndrome babies. Among 102 affected mothers and an equal number of controls, there were 38 mothers of patients and 33 controls who had had a previous delivery since the beginning of the study, and since the birth of the first recorded mongol in the same hospital. For 40% of the cases, but only 18% of the controls, the preceding sibling had been delivered less than 30 days after a mongol birth in the same hospital ($p<0.05$). The mean times between the previous delivery and the associated mongol birth were 64 days for the mothers who subsequently delivered mongols and 77 days for the controls. These figures support the hypothesis of an infective etiology in some cases of Down's syndrome and suggest that the infection could be acquired at the time of a previous delivery through direct or indirect contact with an affected case. (4 refs.) - *A. C. Schenker.*

Hebrew University-Hadassah
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Jerusalem, Israel

3377 **RERRICK, E. G.** A female with XXXX sex chromosome complement. *Journal of Mental Deficiency Research*, 16(2):84-89, 1972.

The identification of a female patient with XXXX sex chromosome complement by means of a buccal mucosa smear examination is described. The patient was an 18-yr-old white girl whose mental and physical development was slow. Cytological findings indicated a 48, XXXX karyotype; 68% of the oral mucosa cells were chromatin positive, 12% contained 3 chromatin bodies, 27% contained 2, and 29% contained one chromatin body. Without the examination of the buccal mucosa smear, this case would have been missed, since the patient had no remarkable physical or sexual developmental abnormalities which would have been diagnostic for the sex chromosome anomaly. The origin of the supernumary X chromosomes is not clear, since the parents and the subject are all Xg (a +). (6 refs.) - *A. C. Schenker.*

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Center
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3378 **SABATER, J.; ANTICH, J.; LLUCH, M.; & PEREZ, DEL PULGAR.** Deletion of short arm of chromosome 18 with normal levels of IgA. *Journal of Mental Deficiency Research*, 16(2):103-111, 1972.

An example of deletion of short arms of chromosome 18, with normal values of IgA in serum, is described in a male infant and a possible hypothesis in this connection is proposed. At 48 hr of age the child showed a severe bilateral cleft lip and palate, flattening of the nose, and agenesia of the premaxillary bones; the ears were large and low set. In cultured leukocytes of peripheral blood samples, a normal number of 46 chromosomes was obtained; in all the metaphases analyzed, it was found that a chromosome 18 showed a deletion of the short arm, with a characteristic horseshoe shape. Its chromosomal constitution was 46, XY, 18p-. The regulator gene and the structural gene(s) for the IgA may be situated in chromosome 18 but in different arms, which would explain the possible shortage of IgA in situations with deletion of short arms or long arms, and also findings of normal values. In this case the IgA at 2 months was 51mg/100ml and at 5 months, 118mg/100ml. Since the IgA develops last during ontogeny, it is possible that the imbalance of genetic material brought about by the deletion may produce a halt in the maturing of the genetic system, which would explain the deficit. (23 refs.) - *A. C. Schenker.*

Instituto Provincial de
Bioquimica
Clinica "Fundacion Juan
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Barcelona, Spain

3379 **ERIKSSON, B.** Sex chromatin deviations among school children in special classes: a study of prevalence and an investigation of birth histories. *Journal of Mental Deficiency Research*, 16(2):97-102, 1972.

Sex chromatin deviations were investigated in special classes of school children in Sweden, which included: remedial classes for children with IQ within 70-95, reading classes, school maturity classes (children aged 7-9 years), and observation classes for children with behavioral disturbances. Of the 18 sex chromatin-positive boys found in the analysis, 14 were encountered in remedial classes, 3 in reading classes, and 1 in school maturity class. Among the girls, the prevalence of double Barr bodies was found to be 8:901 (0.89%), which is 9 times as great as that expected in the general population; all these girls were placed in remedial classes. The study revealed only one girl with negative sex chromatin pattern. A high incidence of abnormality was found at delivery; if this information is confirmed in larger populations, it may help to throw some light on the relationship between chromosomal abnormalities and behavior disturbance. (14 refs.) - *A. C. Schenker.*

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3380 **ARDRAN, G. M.; HARKER, P.; & KEMP, F. H.** Tongue size in Down's syndrome. *Journal of Mental Deficiency Research*, 16(3 & 4):160-166, 1972.

The tongue size was examined in 8 patients with Down's syndrome by radiographic examination to determine whether the tongue is actually enlarged as the child develops. None of the patients showed generalized enlargement of the tongue, but 5 had localized enlargement in the region of the lingual tonsil, associated with the lumen of the pharynx and in some cases with displacement of the leaf of the epiglottis backwards with narrowing of the superior laryngeal aperture. The children seen were from 5 to 15 years old; none had protrusion of the tongue beyond the line of the lower incisor teeth. The common feature they shared with other patients with enlargement of the tongue was a narrowing of the airway, which is mainly due to enlargement of the lingual tonsils. Removal of adenoids, pharyngeal tonsils, or the lingual tonsil might help many of these patients to close their mouth and possibly effect normal jaw development. (14 refs.) - *A. C. Schenker.*

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Oxford, England

3381 **CASEY, M. D.; BLANK, C. E.; MCLEAN, THERESA M.; KOHN, PATRICIA; STREET, D.R.K.; MCDOUGALL, J. M.; GOODER, JENNIFER; & PLATTS, J.**

Male patients with chromosome abnormality in two state hospitals. *Journal of Mental Deficiency Research*, 16(3 & 4):215-256, 1972.

Sex chromosome abnormalities seen in connection with a cytogenic survey of patients in two mental hospitals are described; the common factor in these patients was the need to detain them securely in view of their dangerous, violent, or criminal propensities. The characteristics of these patients were: karyotopes XXY, XYY, and XXYY, and features of Klinefelter's syndrome; patients of karyotype XXY had committed more offenses than those with karyotype XXYY. Sex chromosome abnormality (XXY, XYY, and XXYY) is seen more frequently in the inst MR male than in the newborn male and more frequently still in the MR detained in the special security hospitals. This abnormality is also found more frequently among prisoners not categorized as MR. It is suggested that the effect of an XXY or XYY chromosome complement is mainly on I.Q. and only indirectly on behavior. (59 refs.) - *A. C. Schenker.*

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3382 GUSTAVSON, K.-H.; *WETTERBERG, L.; BACKSTROM, M.; & ROSS, S. B. Catechol-O-methyltransferase activity in erythrocytes in Down's syndrome. *Clinical Genetics*, 4(3):279-280, 1973.

Catechol-O-methyltransferase (COMT) activity in erythrocytes from 19 children with Down's syndrome, in 17 nonmongoloid MR children, and in 16 normal controls, was studied in order to discover a possible disturbance in catecholamine metabolism in Down's disease. The children with Down's syndrome were found to have a significantly higher COMT activity in erythrocytes than do normal children ($P<0.01$). There was no significant difference between the 2 groups of MR children. This finding, combined with the previously reported low dopamine-β-hydroxylase in Down's syndrome, supports the impression of disturbed catecholamine metabolism in this disease. The increase in COMT activity is related to a gene dosage effect, if control of this activity is related to a gene on chromosome 21, which is present in triplicate in Down's syndrome. (5 refs.) - *A. C. Schenker.*

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3383 SPARKES, R. S.; SAMEC, L.; KAPLAN, S. A.; & COULSON, W. F. Concurrence of myotonic dystrophy and XXY Klinefelter syndrome. *Clinical Genetics*, 4(3):264-269, 1973.

Concurrence in the same individual of myotonic dystrophy and 47,XXY Klinefelter syndrome is described. The patient, a 43-year-old man, gave a history of excessive height and weight from an early age. His secondary sex characteristics appeared late and developed incompletely. There was no family history of myotonia, frontal balding, cataracts, or endocrine dysfunction. When first seen at age 34, he weighed 150kg and was 198cm tall; bilateral gynecomastia was present; bilateral hazy lenticular opacities were seen; he had a female escutcheon and the testes were very small. He demonstrated a myotonic response to thumb percussion; the deep tendon reflexes were generally hypoactive, but no muscular atrophy was noted. Routine blood chromosome studies indicated a karyotype of 47,XXY. Muscle biopsy showed fiber atrophy and testicular biopsy showed atrophic tubules with hyalinized tunicae propriae, Sertoli cell linings, and hyperplasia of Leydig cells. There was a complete absence of elastin around tubules. The dermatoglyphic studies showed a low total ridge count. (10 refs.) - *A. C. Schenker.*

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3384 RIDLER, M.A.C.; LAX, R.; MITCHELL, M. J.; SHAPIRO, A.; & SALDANA-GARCIA, P. An adult male with XYYY sex chromosomes. *Clinical Genetics*, 4(1):69-77, 1973.

An adult male with a 48,XYYY karyotype is described and compared with previously published examples of 3 Y chromosomes. Apart from mosaicism, further differences arise from the age distribution of the cases encountered. Features of the present patient which resemble those in reported cases are: low normal I.Q. with better performance than verbal scores, behavior problems with aggressive outbursts, repeated pulmonary infections during early childhood, slightly delayed

milestones, hypotrophic testes, sparse body hair, and acne. Dermatoglyphic analysis showed a low total ridge count, and the sole patterns were quite different from those of other cases. This patient did not have any hormone abnormalities as reported in YY males; neither did she have obvious neurological changes. (20 refs.) - *A. C. Schenker.*

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3385 **JONES, O. W.** A new era for cytogenetics. *Current Problems in Pediatrics*, 2(10):1-31, 1973.

Advances in cytogenetics are presented which include newer staining methods and which promise the detection of variants in normal morphology hitherto unrecognized; the future of cytogenetics is discussed. Determination of linkage groups, particularly in the field of cell hybridization, will be possible, and greater precision will be obtained in mapping the loss of chromosomes in hybrid lines. This also applies to irradiation damage to human chromosomes. Coupling autoradiography with the newer staining procedures will promote more insight into DNA replication. Fluorochrome staining of mammalian chromosome and heterochromatin staining of metaphase chromosomes are described. The prenatal diagnosis of chromosome abnormalities and complications arising from amniocentesis are discussed and illustrated. The possibility of using automated systems for chromosome analysis is considered. (89 refs.) - *A. C. Schenker.*

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3386 **HALBRECHT, I.; KOMLOS, L.; SHABTAY, F.; SOLOMON, M.; & BOOK, A.** Triploidy 69, XXX in a stillborn girl. *Clinical Genetics*, 4(3):210-212, 1973.

The rare survival until term of a triploidy 69,XXX stillborn girl is reported. During the latest gestation the mother, who had given birth to 5 normal children, had been treated with anti-asthmatic drugs during her pregnancy. The birthweight of the child was 1,000gm; no external malformations were observed. The autopsy revealed a small high ventricular septal defect of the heart, and there were subpleural and interstitial hemorrhages. The cultured lymphocytes from the proposita showed complete triploidy, 69,XXX, in each of 50 examined cells; maternal lymphocytes were all 46,XX. Both mother and child displayed a higher than normal incidence of chromatic breaks, and 65% of the maternal lymphocytes showed various types of associations between satellited chromosomes. If the irregularities also occurred in the germ cell, this may have been instrumental in the origin of a triploid zygote by interfering with the maternal meiotic divisions. One of the drugs administered to the mother was phenobarbitone, a folic acid antagonist, which may have caused chromosomal damage. (9 refs.) - *A. C. Schenker.*

Research Institute of Human
Reproduction and Fetal
Development
Department of Obstetrics and
Gynecology
Hasharon Hospital
Petach Tikvah, Israel

3387 **METZ, F.; BIER, L.; & *PFEIFFER, R. A.** Partielle Trisomie des kurzen Arms eines Chromosoms Nr. 4 in der Folg einer Translokation t(4p-22p+) (Partial trisomy of the short arm of chromosome 4 due to translocation t(rp-22p+)). *Humangenetik*, 18:207-211, 1973.

A partial trisomy of the short arm of chromosome 4 is described in a 3-year-old girl with MR. The patient lacked a chromosome of the G group and had an extra chromosome which was barely distinguishable from chromosome 16. In the mother, both siblings, and grandfather, there was, in addition, a lack of the short arm of a chromosome in the B group. According to the findings by autoradiography, a reciprocal translocation t(4p-22p+) was diagnosed. The pathological findings in the child were unspecific; microcephaly, psychomotor retardation, and muscular hypotonia were most prominent. (2 refs.) - *A. C. Schenker.*

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3388 BARTSCH-SANDHOFF, M.; & SCHADE, N. Zwei subterminale Heterochromatinregionen bei einer seltenen Form einer 21/21-Translokation (Two subterminal heterochromatin regions in a rare form of 21/21 translocation). *Humangenetik*, 18:329-336, 1973.

The chromosome analysis of a mild form of Down's syndrome is described in which a translocation was seen resembling a D-chromosome satellited on both ends. Fluorescent staining revealed the marked chromosome to be a 21/21 translocation chromosome with one G_{21} chromosome missing. Heterochromatin staining of the marked chromosome revealed 2 subterminal heterochromatin regions; the distance of the heterochromatin from each end corresponded to the length of the short arm of a G-chromosome. Analysis of the mother's G-chromosomes showed a definite staining in the region of the centromere and a slight or no staining in the region of the satellites. There was no pericentric inversion. The possibility of a functionally feeble centromere is considered. (14 refs.) - *A. C. Schenker.*

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Ulenbergstrasse 127-129
D-4000 Dusseldorf, Bundesrepublik
Deutschland

3389 LAURENT, COLETTE; BOUVIER-LAPIERRE, M.; & DUTRILLAUX, B. Trisomie 10 partielle par translocation familiale t(1;10)(q44;q22) (Partial trisomy 10 due to hereditary translocation t(1;10)(q44;q22)). *Humangenetik*, 18:321-327, 1973.

A chromosome 1q+ was found in a MR girl of 9 months, whose origin was found to be a hereditary translocation t(1q+;Cq-) in 3 generations. Examinations by fluorescence and denaturation permitted accurate observation of all the elements of the C group; among the 3 pairs of submetacentric chromosomes distal to this group, chromosome 10 was easily discernible by a deeply stained band in the juxtacentrometric portion of the long arm. Analysis of the mother's cells confirmed the familial pattern. The dark distal band of chromosome 1q44 appeared to have completely disappeared from the chromosome 1q+; in its place a light band was seen resembling 10q23. The second dark band of chromosome 10q22 was probably reinforced by uniting with 1q44. The trisomy gave rise to MR, marked growth retardation, ocular anomalies, agenesis of the palate, micrognathia, cardiopathy, and skeletal anomalies. (13 refs.) - *A. C. Schenker.*

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3390 NEU, R. L.; BARLOW, M. J., JR.; & *GARDNER, L. I. A case of 46,XY,t(3q-;14q+)mat. *Clinical Genetics*, 4(2):158-161, 1973.

What is believed to be the first case of an inherited translocation between a number 14 and number 13 chromosome is described in a 7-day-old male infant. At birth, physical examination revealed micrognathia, a peculiar facies, a bifid xiphoid, hyperextensibility of the fingers, right indirect inguinal hernia with cryptorchidism, diastasis recti, and a 2.5cm omphalocele. Examination of metaphases revealed a complement of 46 chromosomes, and subsequent karyotyping demonstrated a 46,XX,t(3?-;Dq+) chromosome complement. The mother's karyotype was found to be the same as the infant's, and the father's was normal. By means of Giemsa staining, the banding patterns on the chromosomes indicated that a portion of the 3q chromosome arm had become attached to the end of the long arms of a number 14 chromosome. It is suggested that crossing over during meiosis in the mother could result in deficiencies and/or duplications which could account for the abnormalities observed. (7 refs.) - *A. C. Schenker.*

State University of New York
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3391 HOWARD, P. N.; STODDARD, G. R.; & SEELY, J. R. Banding of human chromosomes treated with papain. *Clinical Genetics*, 4(2):162-165, 1973.

The use of papain in the development of banding patterns for individual human chromosomes is described. To chromosome preparations, made from cultures of peripheral human blood, colchine was added, and slides were made by the air-drying technique. Papain, diluted in pyridine acetate buffer, was used for the next step in the treatment

of the slides, which were then rinsed with ethanol, air-dried, and stained in Giemsa. Banding patterns produced by this method were similar to those reported using other methods. (17 refs.) - *A. C. Schenker.*

University of Southern Mississippi
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Hattiesburg, Mississippi 39401

3392 PFEIFFER, R. A.; & BACHMANN, K. D. An atypical case of Cockayne's syndrome. *Clinical Genetics*, 4(1):28-32, 1973.

Extreme facial cachexia with absence of photosensitivity and of the thickening of the skull are described in a patient with a syndrome resembling Cockayne's. This case differs from the most typical examples by these symptoms; in addition, at the age of 9.6 years, the patient is blind and deaf, but he is still interested in his environment, walks without support and guidance, and is able to understand the voice of his mother near the right ear. The chromosomal analysis showed a small Y-chromosome in the patient and in his father (46,XYq-). The individual expressivity of the gene must be taken as variable. (33 refs.) - *A. C. Schenker.*

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3393 BORGAONKAR, D. S.; BIAS, W. B.; CHASE, G. A.; SADASIVAN, G.; HERR, H. M.; GOLOMB, H. M.; BAHR, G. F.; & KUNKEL, L. M. Identification of a C6/G21 translocation chromosome by the Q-M and Giemsa banding techniques in a patient with Down's syndrome, with possible assignment of Gm locus. *Clinical Genetics*, 4(1):5357, 1973.

The karyotyping of a family of a 26-year-old female with the clinical diagnosis of Down's syndrome is described, in which a C/G, probably 6/21, translocation chromosome was ascertained. The mother was a balanced carrier with 45 chromosomes, including a C/G translocation. The karyotype of the patient showed 46 chromosomes, including 15 in the C group, 3 of the size of a number 3, and 4 autosomes in the G group. Three male sibs had also inherited the translocation chromosome, but in a balanced state. In linkage studies, there was consistent segregation between the Gm locus and the 6/21 translocation chromosome. Since previous linkage studies on Down's syndrome patients do not suggest assignment of the Gm locus to chromosomes 21, it is more likely that the C(6) autosome carries the Gm locus. (8 refs.) - *A. C. Schenker.*

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3394 NIELSEN, JOHANNES; FRIEDRICH, U.; HOLM, V.; PETERSEN, G. B.; STABELL, I.; SIMONSEN, H.; & JOHANSEN, K. Turner-phenotype in males. *Clinical Genetics*, 4(1):58-63, 1973.

The etiological factors in males with Turner-phenotype, especially lack of Y or X chromosome material, were sought in 3 males with this disease. These patients had the common physical signs that characterize patients with this syndrome, besides which there was adhesion of os multangulum majus and minus in one, tibia-exostosis in another, and ptosis in the third patient. One of the 3 patients was MR and the other two had intelligences in the lower part of the normal range. There was no indication that the syndrome was inherited in any of the patients, nor any excess of physical or mental disorders in their families. No aberrations were found in terms of deletions or translocations and mosaics by examination of orcein or quinacrine stained chromosome preparations. The relative length of the Y chromosome was in the lower part of normal in 2 of the 3 patients. No conclusions as to etiology can be drawn from this small, selected group of patients. (15 refs.) - *A. C. Schenker.*

Arhus State Hospital
Risskov, Denmark

3395 PASHAYAN, H.; DALLAIRE, L.; & MACLEOD, P. Bilateral aniridia, multiple webs and severe mental retardation in a 47XXY/48,XXXY mosaic. *Clinical Genetics*, 4(2):125-129, 1973.

A 9½-year-old phenotypic male showing multiple malformations that have not been previously described in association with sex chromosome aneuploidy is reported. Multiple congenital mal-

formations consisted of partial and bilateral aniridia, hypertelorism, bilateral enlarged ears, pes equinovarus, hepatosplenomegaly, marked webbing of the cubital and popliteal regions, and bilateral cryptorchidism. The numerous somatic malformations and severe MR in this case may be explained if a state of mosaicism (47,XXY/48,XXXY, with the cell line 47,XXY predominating) is assumed *in utero* and early infancy. In this case, a loss of the most abnormal cell line (48,XXXY) occurred. Severe ocular malformations leading to secondary blindness and the multiple webs are unique findings for Klinefelter's syndrome, which was considered the diagnosis in this case. (17 refs.) - *A. C. Schenker.*

Center for Genetics
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3396 **WILKINSON, EDWARD J.; FRIEDRICH, EDUARD G., JR.; MATTINGLY, RICHARD F.; REGALI, JAMES A.; & GARANCIS, JOHN C.** Turner's syndrome with endometrial adenocarcinoma and stilbestrol therapy. *Obstetrics and Gynecology*, 42(2):193-200, 1973.

A 26-year-old nulliparous woman with ovarian dysgenesis was treated with diethylstilbestrol (DES) continuously for 9 consecutive years, after which she developed adenocarcinoma of the endometrium. Her karyotype revealed 45 chromosomes with apparent absence of 1 large member of the C group (45X-O), compatible with Turner's syndrome. The patient initially refused hysterectomy, but the tumor was unresponsive to progestin therapy, and a hysterectomy was agreed upon. This case is noteworthy for the young age of the proposita and for the ineffectiveness of progestin therapy. The relationship between patients with Turner's syndrome and endometrial adenocarcinoma who received DES and young women with adenocarcinoma of the vagina and cervix who had received DES *in utero* remains conjectural. (22 refs.) - *B. J. Grylack.*

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Hospital
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3397 **KHUDR, GABRIEL; *BENIRSCHKE, KURT; BROOKS, DONNA; & RAKOFF, JEFFREY S.** XO-XY mosaicism and nonfluorescent Y chromosome. *Obstetrics and Gynecology*, 42(3):421-428, 1973.

A young male with growth retardation and a male hermaphrodite with Turner's phenotype, both with chromosome mosaicism for an XO clone and one with the abnormal element, had a nonfluorescent Y chromosome. This Y chromosome in the first case appeared to be the result of a long arm deletion. The much smaller element in the second patient was more difficult to identify. Since it bore no resemblance to any other element, because of the presence of a unilateral testis, and because of the greater proportion of cells bearing this abnormal chromosome in cultures from the testis than in lymphocytes, it also was assumed to be an abnormal Y caused by deletion rather than translocation. The male determining portion of Y was probably present in both Ss, and it was fortuitous that one developed as a boy and the other as a girl. Preventive gonadectomy was performed on the second patient, but orchiectomy was not recommended for the first patient. (19 refs.) - *B. J. Grylack.*

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3398 **FARBER, MARTIN; PALMER, PHILIP E.; & BULL, MARILYN J.** Pure gonadal dysgenesis with bilateral gonadoblastomas. *Obstetrics and Gynecology*, 42(2):186-192, 1973.

A 21-year-old MR female hospitalized for a diagnostic evaluation of primary amenorrhea was found to be a 46,XY phenotypic S with pure gonadal dysgenesis representing a case of bilateral totally calcified gonadoblastomas. The clinical diagnosis of pure gonadal dysgenesis was confirmed histologically. Although a definitive diagnosis of gonadoblastoma was impossible because of the absence of a viable germ cell component, the clinical, chromosomal, and underlying gonadal abnormality were all compatible with this diagnosis, and distinctive calcification and the presence of Leydig or lutein cells provided further support. The results of clinical experience and a review of the literature indicate that chromosomal analysis should be performed early in an investigation of delayed menarche and that those phenotypic females shown to have a Y sex chromosome should undergo bilateral gonadectomy. (23 refs.) - *B. J. Grylack.*

3399 **ROCHE, A. F.; ROCHE, P. J.; & LEWIS, A. B.** The cranial base in trisomy 21. *Journal of Mental Deficiency Research*, 16(1):7-20, 1972.

Two hundred and sixty-nine cephalometric radiographs of 131 individuals with confirmed trisomy 21, without translocation or mosaicism, were evaluated and contrasted with 449 radiographs of 95 normal Ss. Mean cranial base lengths were shown to reach adult values at younger ages in the trisomic children than in normal children except for the spheno-ethmoidale (SE)- sella (S) length in the girls. The differences between the trisomic and normal children in mean cranial base lengths were greater in boys than girls for both nasion (N)-basion (BA) and S-BA, but the corresponding differences were similar for N-S and SE-S in each sex. There was a corresponding difference in the size of the variances for adult males with the exception of N-S. The present findings confirm that the mean differences between normal and trisomic children are much greater for N-S than for other cranial base lengths, the differences in N-S between the 2 groups of children being highly significant at $p<.001$ in each age- and sex- specific group, and that mean values for the saddle angle (N-S-BA) are distinctly higher for groups of trisomic children than for corresponding groups of normal children. (47 refs.) - *B. J. Grylack.*

Fels Research Institute
Yellow Springs, Ohio 45387

3400 **BROOKS, D. N.; WOOLEY, H.; & KANJILAL, G. C.** Hearing loss and middle ear disorders in patients with Down's syndrome (mongolism). *Journal of Mental Deficiency Research*, 16(1):21-29, 1972.

Fifty-five male and 55 female Down's syndrome patients with a mean CA of 26.3 years were compared with equal groups of control Ss matched closely for CA and sex in an evaluation of the degree and nature of auditory malfunctions in Down's syndrome. Wherever possible, pure tone audiometry was performed using a Peter's SPD.5 Audiometer calibrated to I.S.O. Standards. All Ss were tested with the Madsen ZO.70 electroacoustic impedance bridge. Seventy-five percent of controls but only 27% of Down's syndrome patients were classified as being within normal limits. Fifty-eight percent of patients but only 19% of controls had a mild hearing loss. Only 23% of patients had ears that could be classified as normal both for hearing and for middle ear function, as compared with 74% of controls. Sixty percent of patients but only 17.5% of controls exhibited middle ear malfunction, while 36% of patients but only 11% of controls indicated an element of sensorineural hearing loss. Early detection of exudative otitis media, the most common inflammatory condition of the middle ear in children, and appropriate therapy might produce a higher communication ability and greater educational attainment in Down's syndrome children. (14 refs.) - *B. J. Grylack.*

Manchester Audiology Clinic
Manchester M3 3HD, England

3401 **DODD, BARBARA J.** Comparison of babbling patterns in normal and Down-syndrome infants. *Journal of Mental Deficiency Research*, 16(1):35-40, 1972.

The relationship between intelligence and patterns of infant vocal behavior was investigated with 10 9-13-month-old mongol and 10 CA- and sex-matched normal infants. The Bayley Scales of Infant Development (Bayley, 1969) were used to determine the stage of development of the infants. The obtained data were analyzed with regard to the frequency of emission and length of utterances and the range of vowel and consonant phonemes. The Down's syndrome group scored significantly lower on the Mental Development Index and Psychomotor Development Index of the Bayley Scales than did the normal group ($t=11.810$, $df\ 18$, $p>.001$, and $t=11.796$, $df\ 18>.001$, respectively). The Down's syndrome infants were rated as lower than the normal group on emotional tone, tension, activity, manipulation, and body motion. However, with the exception of a slight nonsignificant trend for the mongol infants to produce fewer consonant sounds, the vocal behavior of the 2 groups was indistinguishable. The findings indicate that, at this stage of development, vocal behavior is not closely connected with level of intelligence or later articulatory proficiency. (15 refs.) - *B. J. Grylack.*

Medical Research Council
Developmental Psychology Unit
Drayton House, Gordon Street
London W.C.1, England

3402 **RUNDLE, A. T.; DONOGHUE, ELAINE; ABBAS, K. A.; & KRSTIC, A.** A catch-up phenomenon in skeletal development of children with Down's syndrome. *Journal of Mental Deficiency Research*, 16(1):41-47, 1972.

The skeletal age of 74 males and 82 females with Down's syndrome was determined by matching standardized radiographs of the left hand and wrist with the series of normal standards of Greulich and Pyle (1957), and the relationship between osseous age and CA was plotted by the technique of intersecting linear regression. With the nonlinear growth curve represented by 2 linear segments, with a point of intersection at 8 yrs in both sexes, the equations for the acceleration phase (0-8 years) were shown to be

male (n 48) bone quotient=0.66 + 0.043 X CA (years)
female (n 37) bone quotient=0.54 + 0.041 X CA (years)

where bone quotient is equivalent to skeletal age divided by CA. After age 8 the mean bone quotient for the males is 0.97 and for the females, 0.95. Comparison of the regression coefficients of the equations of the acceleration phase of the male and female Ss failed to show any significant difference between the sexes. The disparity between these findings and those in previous surveys is probably due, at least partially, to the failure of earlier investigators to recognize the nonlinear nature of the growth process. (32 refs.) - *B. J. Grylack.*

St. Lawrence's Hospital
Caterham, Surrey, England

3403 **LOESCH, DANUTA.** Minutiae and clinical genetics. *Journal of Mental Deficiency Research*, 17(2):97-105, 1973.

Two basic types of minutiae, ends or terminations (E) and junctions or bifurcations (J), were examined in the hypothenar palmar area with pattern or without pattern, the palmar area below the *d* digital triradius, patternless in all cases, and on the IVth fingertip with whorl pattern, loop pattern, and without pattern of 115 adult normal Ss. The ridges on the hypothenar area displayed the highest intensity of minutiae pattern per number of ridges (I) and the ridges on the IVth fingertip the lowest, regardless of pattern type. In contrast, the J index was relatively low in both palmar areas and significantly higher on the fingertip. The proportion of ends was found to be correlated positively with the presence of pattern rather than with pattern type, at least on the IVth fingertip. The clinical use of minutiae was tested on 40 Down's syndrome patients (CA 5 to 18 years). On the whole, in all the areas examined the mongols displayed lower intensity of minutiae, with a relatively higher proportion of Js than the controls. When the intensity of minutiae index and intensity of junctions index means from the area below the *d* digital triaradius in mongols were compared further with those from 130 normal children (CA 6 to 14 years), the only observed difference involved the proportion of Js, which remained higher in mongols. (10 refs.) - *B. J. Grylack.*

Psychoneurological Institute
Pruszkow, Poland

3404 **SANDS, MARGARET E.** A possible case of partial trisomy for chromosome 22. *Journal of Mental Deficiency Research*, 17(2):107-115, 1973.

An SMR woman with 47 chromosomes, one of which resembled a G group chromosome but was shorter than the members of this group, may have been affected with partial trisomy 22. Fluorescence studies did not indicate that the aberrant chromosome had arisen from chromosome 21 or from a chromosome of the D or E group, but a diagnosis of partial trisomy E was suggested strongly on the basis of the dermatoglyphic discriminant test. The clinical picture of the proposita, combining severe MR with relatively minor physical anomalies, included no signs suggestive of a relationship with known trisomy syndromes. Cytologic evidence favored a diagnosis of partial trisomy 22, the lack of the expected multiple congenital anomalies being due to the partial nature of the trisomy. (24 refs.) - *B. J. Grylack.*

Postgraduate School of Studies
in Biological Sciences
University of Bradford
Bradford, Yorkshire BD7 1 DP, England

3405 **DEATON, J. G.** The mortality rate and causes of death among institutionalised mongols in Texas. *Journal of Mental Deficiency Research*, 17(2):117-122, 1973.

An analysis of the mortality rate and causes of death among inst Down's syndrome patients in Texas during the period January 1, 1960, to December 31, 1969, has revealed a real increase in the survival of mongols during the past 2 decades, primarily as a result of the availability and use of antibiotics and better overall medical care. Of 1,018 mongols (55% males and 45% females), 91 died during the 10-year study period, at an average CA of 30.5 years. This mean is approximately 3 times greater than the value of 10 years reported in 1945 and double the mean death age of 16.2 years reported in 1963. The death rate was greatest in persons under age 4 or over age 50, with males comprising 50.5% of the deaths and females 49.5%. The leading causes of death were heart disease and pneumonia, accounting for 35.1% and 23.1% of deaths, respectively. The overall mortality rate was 17.3 deaths per 1,000 person-years at risk. (10 refs.) - *B. J. Grylack.*

University of Texas
Austin, Texas

3406 SCHINDELER, J. D.; & WARREN, R. J. Dermatoglyphics in the G deletion syndromes. *Journal of Mental Deficiency Research*, 17(2):149-156, 1973.

Analysis of the dermatoglyphics of 17 patients who had been reported with a deleted G chromosome (9 had G deletion syndrome I [GdI] and 8, the GdII phenotype) has indicated the possibility of differentiating the 2 phenotypes on the basis of overall dermatoglyphic patterns. GdI exhibits a striking increase in radial loops and only a slight decrease in ulnar loops, and this phenotype is more likely to have a normally placed axial triradius. GdII is marked by a significant increase in whorls and decrease in both ulnar and radial loops, and it will have a triradius distally placed with a corresponding increase in atd angle. Hypothenar patterns are indicative of the GdII phenotype. These dermatoglyphic data also permit a test of the contretype postulate of Lejeune et al. (1964). (25 refs.) - *B. J. Grylack.*

Mailman Centre for Child
Development
University of Miami
Miami, Florida

3407 YANAGISAWA, S. Partial trisomy 8: further observation of a familial C/G translocation chromosome identified by the Q-staining methods. *Journal of Mental Deficiency Research*, 17(1):28-32, 1973.

An 18-year-old Japanese male with an inherited familial C/G unbalanced translocation and his 39-year-old mother, a carrier with a balanced reciprocal translocation, both described previously, were evaluated further by the quinacrine fluorescence technique. Q-staining of metaphase chromosomes indicated an affected No. 8 chromosome in the C group and a No. 21 in the G group. The propositus had mental and physical retardation associated with a 46,XY,+21p+mat karyotype, and his apparently physically and mentally normal mother had 46,XX,t(8p-;21p+). The propositus had an excess chromosomal segment of the short arm of No. 8 and therefore partial trisomy for the short arm of this chromosome. (8 refs.) - *B. J. Grylack.*

Yamaguchi University School
of Medicine
Ube, Japan

3408 ANTICH, J.; & SABATER, J. C autosomal trisomy with mosaicism. *Journal of Mental Deficiency Research*, 17(1):33-45, 1973.

Trisomy C was seen with mosaicism in a male infant affected with MR and multiple congenital malformations. Chromosomal analysis showed 46,XY/47,XY,C+ mosaicism. The submetacentric supernumerary chromosome of group C (6-12X) found in 32.5% of a total of 80 cells examined represented a case of an autosome belonging to one of pairs 8, 10, or 12. The presence of this supernumerary chromosome could arise from a nondisjunction after the first mitotic division, starting from a normal zygote, or as a consequence of anaphase lagging at a mitotic division of a zygote initially trisomic. The existence of certain clinical features in the present case in common with the majority of cases of trisomy C with mosaicism speaks in favor of a distinct, clinically recognizable syndrome of Trisomy C, due to the existence of a supernumerary chromosome belonging to the same pair within the autosomal group 6-12. The most common anomalies in this syndrome are MR, abnormal shape of the cranium, deformed and low-set ears, microretrognathia, elongated and slender trunk, dysplasia of the

fingers, defects in joint extension, disorders of the ribs and vertebrae, congenital dislocation of the hips, and cryptorchidism in males. (25 refs.) - *B. J. Grylack.*

Instituto de Bioquimica Clinica
"Fundacion Juan March"
Diputacion Provincial de
Barcelona
Spain

3409 MOORE, B. C. Some characteristics of institutionalised mongols. *Journal of Mental Deficiency Research*, 17(1):46-51, 1973.

Data gathered during the last completed (1968) annual census and based upon a total of 2,748 mongols within a study population of more than 24,000 MRs indicate that mongols comprised 11.33% of the population of 22 western inst reporting, the largest known certain etiologic category. The mean CA of western mongols was 24.4 years. Males constituted 57% and females 43% of the group. Inst mongols tended to cluster among the lower ranges of the MRs. Significant differences were found between the racial distribution of mongol and nonmongol MR groups, possibly as a consequence of socioeconomic bias. Epilepsy was found to be considerably less prominent among mongols than among other etiologic groups. Inst programs have been less successful in teaching communication skills as compared to other social skills. When 254 trisomic, 21 translocation, and 18 mosaic Down's syndrome cases were compared on intelligence test scores and rated behavior, the translocations were high, trisomies intermediate, and mosaics lowest in intellectual ability. (12 refs.) - *B. J. Grylack.*

Arizona State University
Tempe, Arizona

3410 MORIC-PETROVIC, SLAVKA; LACA, ZIVANA; MARKOVIC, STEFANIJA; & MARKOVIC, VJERICA. 49,XXXXY karyotype in a mentally retarded boy. *Journal of Mental Deficiency Research*, 17(1):73-80, 1973.

An MR boy with autoradiographically confirmed 49,XXXXY chromosomal complement had an unusual facies, increased frequency of arches on the fingers, various skeletal anomalies but no radio-ulnar synostosis, hypogonadism, and probably dyslalia. The mother, father, and brother of the propositus had normal chromosomal complements. Since both parents were young, maternal nondisjunction was probably not responsible for the origin of the extra chromosome. Unfortunately, *Xg/a/* blood group studies could not be performed. There is justification for considering the male with the 49,XXXXY complement as a clinical entity distinct from Klinefelter's syndrome. (10 refs.) - *B. J. Grylack.*

Institute for Mental Health
Human Cytogenetic Laboratory
Belgrade, Palmoticeva, Yugoslavia

3411 FLUGE, G.; MYKING, A.; & AARSKOG, D. Male pseudohermaphroditism in a patient with E-trisomy syndrome. *Acta Paediatrica Scandinavica*, 62(4):440-444, 1973.

Male pseudohermaphroditism was diagnosed in a newborn infant with E-trisomy who died at 4 days of age. The major defect in sexual development in the patient, a failure of the embryonic testes to suppress differentiation of the Mullerian ducts, was probably not caused by any general, nonspecific effect of chromosomal imbalance but was rather a fortuitous event related to the phenomenon seen in hernia uteri inguinale. The etiology of this condition is unknown, but familial occurrence and parental consanguinity indicate the possibility of a genetic disorder. (4 refs.) - *B. J. Grylack.*

Barneklinikken
Haukeland sykehus
5000 Bergen, Norway

3412 SANCHEZ, OTTO; ESCOBAR, JAVIER I.; & YUNIS, JORGE J. A simple G-banding technique. *Lancet*, 2(7823):269, 1973. (Letter)

The use of Giemsa or Wright's diluted stains has resulted in chromosomal banding of good quality and has eliminated the need for pretreatment of the slides. In general, the bands obtained with Giemsa tend to be more delicate, while the proportion of analyzable banded mitosis obtained is present more consistently when the Wright's stain is employed. Simple G-banding with these 2

stains suggests that banding is a native conformational feature of chromosomes. (1 ref.) - *B. J. Grylack.*

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Box 198
Mayo Memorial Building
Minneapolis, Minnesota 55455

3413 ZUELZER, RUBY THOMPSON; OTTENBREIT, MARK; INOUE, SUSUMU; & ZUELZER, WOLF W. Banding in old chromosome preparations. *Lancet*, 2(7823):270, 1973. (Letter)

The quality of banding attributable to aging in stored Giemsa slides, while not so satisfactory as that achieved by current banding techniques, still permits a correlative study of chromosomal abnormalities found in specimens made before the banding era with those of recently processed specimens. Reexamination of old chromosome preparations of bone marrow, blood, and skin fibroblasts showed a small percentage of these cells to exhibit a banding pattern analogous to that of a G-9 technique. To date, 15 specimens (30 slides) processed 2 to 9 years ago have been examined, with photographic records made of selected cells using phase-contrast microscopy and Kodak high-contrast copy film. (2 refs.) - *B. J. Grylack.*

Child Research Center of Michigan
Detroit, Michigan 48201

3414 BARLOW, MATTHEW J.; NEW, RICHARD L.; & *GARDNER, LYTT I. X-chromosome banding in Noonan syndrome: examination by acetic acid-saline-Giemsa stain technique. *American Journal of Diseases of Children*, 126(5):656-657, 1973.

The banding patterns of the X chromosomes of a girl with Noonan syndrome were studied by a new modification of the acetic acid-saline-Giemsa (ASG) staining. At age 9 years 4 months, the patient was of short stature and had a webbed neck and infantile genitalia; the electrocardiogram was interpreted as showing marked right axis deviation, an incomplete right bundle branch block, and slight right ventricular hypertrophy. The hypothesis of Ferguson-Smith that individuals with a normal chromosome pattern but with the Turner phenotype could be accounted for by assuming deletion of an homologous portion of either the X or the Y chromosomes undetectable by methods then available was tested by examining the banding patterns of the X chromosomes in this case with newer techniques. No structural rearrangement or deletion of X chromosome material was detected; the chromosome complement proved to be 46,XX. (12 refs.) - *A. C. Schenker.*

State University of New York
Upstate Medical Center
Syracuse, New York 13210

3415 BOBROW, MARTIN; *EMERSON, PAULINE M.; SPRIGGS, ARTHUR I.; & ELLIS, HUGH L. Ring-1 chromosome, microcephalic dwarfism, and acute myeloid leukemia. *American Journal of Diseases of Children*, 126(2):257-260, 1973.

A case of ring formation from a No. 1 chromosome is described in a 9-year-old MR girl who subsequently developed anemia with marrow erythroid hyperplasia and eventually died with acute myeloid leukemia. At age 9 years, the patient was 42.9in tall and weighed 43.2lbs; developmental assessment showed motor norms of 8 years and adaptive social and language norms of 4 years. Chromosomes were analyzed in 72-hour peripheral blood cultures; of the diploid cells, 95% showed a large ring chromosome replacing one No. 1 chromosome. This case differs from congenital dyserythropoietic anemia with erythroid multinuclearity in the presence of a pancytopenia, the absence of a family history of anemia, and the development of myeloid leukemia. From the course of the illness, it is suggested that the morphological changes in the bone marrow were related to the development of neoplasia rather than directly to the constitutional chromosome anomaly. (13 refs.) - *A. C. Schenker.*

Department of Haematology
Gibson Laboratories
Radcliffe Infirmary
Oxford, England

3416 LIPPE, BARBARA M.; & CRANDALL, BARBARA F. Turner syndrome with partial deletion of the X chromosome long

arm. *American Journal of Diseases of Children*, 126(2):222-224, 1973.

An 18-year-old girl with secondary amenorrhea, short stature, and multiple pigmented nevi is described whose karyotype was 46,XXq-, positively identified by trypsin Giemsa banding and fluorescent karyotyping. The serum gonadotrophin levels were characteristic of ovarian failure; sex chromatin studies revealed variable numbers and diminished size of the sex chromatin bodies. Sex chromatin studies alone are not sufficient as a screening device for Turner syndrome, since patients with structural X chromosome changes may have adequate numbers of X-chromatin bodies. Even an apparently normal karyotype, if suspected, should suggest the need for a more sophisticated chromosome study such as the trypsin-Giemsa technique. (9 refs.) - *A. C. Schenker.*

University of California
Los Angeles, California 90024

3417 SURANA, RAWATMAL B.; HUNT, TREVOR M.; & *CONEN, PATRICK E. Multiple congenital defects associated with 45,XO/46,XYq- mosaicism. *American Journal of Diseases of Children*, 126(1):75-77, 1973.

A 2-month-old male infant with 45,XO/46,XYq- mosaicism and multiple congenital anomalies is described. Some of the clinical characteristics included an elongated head, prominent occiput, flexion deformity and overlap of the fingers, and cleft lip and palate. Most cultured lymphocytes contained 46 chromosomes, including a minute chromosome which was not found in 25% of metaphases from fibroblast cultures, suggesting a mosaicism such as 45,XO/46,XYq-. Both parents had normal karyotypes. The cytogenic findings, together with the male phenotype of the patient, led to the interpretation of the minute chromosome as a Y from which most of the long arm had been deleted. (11 refs.) - *A. C. Schenker.*

Hospital for Sick Children
Toronto 2, Ontario, Canada

3418 JOHNSTON, A. W. Congenital hemihypertrophy. *British Medical Journal*, 1(5854):678, 1973. (Letter)

Selection on the basis of asymmetry of subjects for study in congenital hemihypertrophy has demonstrated that chromosomal abnormality is not a predominant cause. Of 9 asymmetric patients studied there were 3 hemihypertrophies, 3 hypertrophies of 1 limb, 2 hemiatrophies, and 1 hypertrophy of 1 arm and opposite leg. The final patient studied was the only one in whom suggestion of chromosomal abnormality was found. There is no indication of a uniform etiology for this type of malformation. (1 ref.) - *C. Wares.*

3419 TAYSI, KUTAY; SAY, BURHAN; & BOBROW, MARTIN. Questionable diagnosis of D_1 trisomy syndrome. *Journal of Pediatrics*, 83(1):177, 1973. (Letter)

Comments by Wyatt regarding a questionable diagnosis of D_1 trisomy are countered with the fact that although the dermatoglyphic patterns of the proposita resembled those found in patients with trisomy 18, the other findings were compatible with a diagnosis of trisomy 13. Giemsa and fluorescent banding patterns clearly show that the abnormal chromosome in the mother is a pericentric inversion of chromosome No. 13, and the proposita had the duplication deficiency product of this chromosome. Satellites, found on the marker chromosome in the mother and other satellited chromosomes in the patient, provide further evidence that the abnormal chromosome is derived from the D group. - *A. C. Schenker.*

Hacettepe University
Ankara, Turkey

3420 WYATT, JAMES F. Questionable diagnosis of D_1 trisomy syndrome. *Journal of Pediatrics*, 83(1):177, 1973. (Letter)

Reference is made to an article by Taysi and associates in which the patient's photograph, clinical findings, and dermatoglyphic findings seem to support the diagnosis of a partial E_{18} trisomy, rather than a D_1 trisomy as suggested by the authors. It is possible that the child had a translocation of an E segment onto the D marker chromosome she inherited from her mother. (1 ref.) - *A. C. Schenker.*

Loma Linda University Medical Center
Loma Linda, California 92354

3421 RUTTEN, F. J.; HUSTINX, T.W.J.; SCHERES, J.M.J.C.; & WAGENER, D.J.T. Acquired trisomy 9. *Lancet*, 2(7826):455, 1973. (Letter)

The recent discovery of a case of acute myelomonoblastic leukemia is reported in a man having a trisomy of chromosome 9 in about 35% of the mitotic bone-marrow cells examined directly after aspiration. Chromosome 9 was identified by a modified trypsin-Giemsa banding technique and the Giemsa-11 staining method. (4 refs.) - *A. C. Schenker.*

Katholieke Universiteit Nijmegen
Nijmegen, Netherleands

3422 BATH, DANIEL W.; & GENDEL, B. R. Giemsa banding of meiotic chromosomes. *Lancet*, 2(7826):455, 1973. (Letter)

Banding on meiotic material is described using Giemsa staining. Cytological preparations were made with tissue of orchidectomized patients with prostatic cancer. Spermatogenic cells were dispersed in 0.075 M potassium chloride, adjusted to pH 8.5 with borax buffer, and allowed to remain in this solution for 60min before fixation in methanol/acetic acid (3:1). Cells were flame-dried following rinsing. The preparations were immersed in 0.2 M hydrochloric acid, after drying, for 30-60 min; slides were then rinsed and incubated in buffered solution at 60°C for 4-6 hours. After rinsing, the slides were stained for 30 min in 2% Giemsa in MacIlvain's buffer at pH 7.0. Good banding was obtained on pachytene and diplotene/diakinesis stages of meiosis. (9 refs.) - *A. C. Schenker.*

Veterans Administration Hospital
Memphis, Tennessee 38104

3423 FREEDOM, ROBERT M.; & *GERALD, PARK S. Congenital cardiac disease and the "Cat Eye" syndrome. *American Journal of Diseases of Children*, 126(1):16-18, 1973.

The cat eye syndrome is described in 3 patients, and a review of the literature on this syndrome is presented. The syndrome is uncommon and only 13 cases have been adequately documented; it is characterized by iridal and choroidal coloboma, although these are not invariably present. Thus far, only one patient is reported to have a normal karyotype; there is usually a chromosomal anomaly represented by an extra, small, acrocentric chromosome whose origin is not entirely clear. Five of the 13 cases had serious congenital heart disease; it would appear that the congenital cardiac defects pose the most consistent threat to life in these patients. (12 refs.) - *A. C. Schenker.*

Helen B. Taussig Children's
Cardiac Center
The Johns Hopkins Hospital
Baltimore, Maryland 21205

3424 REED, TERRY; SHIELDS, LARRY; & NANCE, WALTER E. Dermatoglyphic heterogeneity in mongols with congenital heart disease. *American Journal of Human Genetics*, 25(1):109-110, 1973. (Letter)

A review of medical records for 117 cases of Down's syndrome investigated possible relationships between the presence and severity of congenital heart defects and dermatoglyphic index scores. In agreement with previous studies, patients with more severe cardiac abnormalities were found to have significantly higher Dermatogram scores than did those with no, or only minor, heart defects. These correlated findings may reflect the independent effects of an unusually severe disruption of intrauterine growth or, alternatively, the dermatoglyphic changes may be causally related to the cardiac abnormalities. (6 refs.) -. *N. Mize.*

Indiana University School of
Medicine
Indianapolis, Indiana

3425 BARTHOLOMEW, ALLEN A.; & HARVEY, JILL. XYY males in Victoria: Two further examples. *Medical Journal of Australia*, 2(16):908, 1972. (Letter)

The identification of two more 47, XYY males in Victoria brings the area total of known cases to 18. Like 6 others in this group, the 2 most recently identified are prisoners charged with sexual offenses. Both are tall and have recognized personality disorders. The first, age 21 yrs, is also an alcoholic and has a WAIS IQ of 79. The second is 26 yrs old and has a WAIS IQ of 86. (6 refs.) - *N. Mize.*

H.M. Prison Pentridge
Coburg, Vic. 3058, Australia

3426 **BERATIS, NICHOLAS; KARDON, NATALINE B.; HSU, LILLIAN Y.F.; GROSSMAN, DORA; & HIRSCHHORN, KURT.** Parental mosaicism in trisomy 18. *Pediatrics*, 50(6):908-911, 1972.

An epidemiologic investigation precipitated by the diagnosis of 5 cases of the relatively rare trisomy 18 syndrome in a period of 6 mos turned up no common causative factors in the patients' parents. Serum samples in this group were all negative for hepatitis-associated antigen, and thyroid antibody titers were all within normal limits. Chromosomal studies demonstrated trisomy 18 mosaicism in the father of one affected child, but in all 9 parents investigated, phenotype and intelligence were normal. The one finding of parental mosaicism, however, highlights the importance of performing chromosomal analysis on the parents of trisomic children—especially where the mother is young—as an essential part of genetic counseling. (22 refs.) - *N. Mize.*

Mount Sinai School of
Medicine
New York, New York 10029

3427 **WARREN, RICHARD J.; RIMOIN, DAVID L.; & SUMMIT, ROBERT L.** Identification by fluorescent microscopy of the abnormal chromosomes associated with the G-deletion syndromes. *American Journal of Human Genetics*, 25(1):77-81, 1973.

Sensitive fluorescent techniques using quinacrine mustard staining have enabled laboratory investigators to accurately distinguish abnormalities of chromosomes 21 and 22 associated with the G-deletion syndrome. In support of Lejeune's hypothesis that antimogolism is caused by partial monosomy of chromosomal material which in triplicate causes mongolism, fluorescent microscopy techniques identified a ring 21 chromosome in a 2-yr-old boy with clinical features of the G-deletion syndrome I (antimogolism). Two other children with the G-deletion syndrome II phenotype were shown to have ring 22 chromosomes. (14 refs.) - *N. Mize.*

University of Miami
Miami, Florida 33152

3428 **DECKERS, J.F.M.; OORTHUYS, A.M.A.; & DOESBURG, W. H.** Dermatoglyphics in Down's syndrome. I: Evaluation of discriminating ability of pattern areas. *Clinical Genetics*, 4(4):311-317, 1973.

The dermal patterns of a group of patients with 47 chromosome trisomy-21 were compared with those of normal healthy individuals, and a grading of pattern areas was developed for use as a diagnostic measure. The Ss comprised 183 trisomy-21 patients and 125 normal individuals, in whom the relative frequency of occurrence of all dermal patterns in 15 pattern areas on hands and feet, left and right side, was determined. The 5 pattern areas with the highest discrimination ability were in: the hallucal area, palmar triradius, simian crease, hypothenar, and digit 2; the discriminative efficiency of digit 2 seems to be less important in the Dutch population than in the population selected by Davis; and the Nijmegen code for palmar transverse creases offers an important contribution to the discriminating values of these features. (17 refs.) - *A. C. Schenker.*

University of Nijmegen
(Medicine)
Nijmegen, the Netherlands

3429 **CARREL, ROBERT E.; SPARKES, ROBERT S.; & WRIGHT, STANLEY W.** Chromosome survey of moderately to profoundly retarded patients. *American Journal of Mental Deficiency*, 77(5):616-622, 1973.

Chromosome studies were conducted on 130 mentally retarded patients with congenital malformations, none with Down's syndrome. The results indicate that 21.2% of patients with moderate to profound retardation and malformations had a chromosome abnormality which is probably related to the abnormal phenotype. Nineteen of 121 patients, with no known etiologic diagnosis for their retardation, displayed a chromosome abnormality. Although the patients selected for investigation were moderately to profoundly retarded, had multiple congenital abnormalities and had no known etiologic diagnosis for their retardation, those criteria were also true for the chromosomally normal as well as the chromosomally abnormal. (18 refs.) - *A. C. Schenker.*

3430 **DECKERS, J.F.M.; OORTHUYS, A.M.A.; & DOESBURG, W. H.** Dermatoglyphics in Down's syndrome. II. Evaluation of scoring methods. *Clinical Genetics*, 4(4):318-327, 1973.

Various scoring methods were treated in confirming the clinical diagnosis of Down's syndrome in a series of 308 Dutch individuals. These methods included: the Walker scoring, using dermal patterns on hands and feet; the Beckman et al. scoring, based on palmar dermal patterns; Borgaonkar et al. scoring, a predictive discrimination method based on Geisser's theory; and that of Bolling et al., who modified the Hopkins score by proposing a two-digit score combining patterns on the left and right side. The most promising results were obtained by the last method, the composite score being the best choice for its partial correction of interdependence of patterns, its better discrimination, and its more simple applicability. Both the single score method (95.5% correctly scored) and the composite score method (97.7% correctly scored) showed a very accurate classification. This method was proposed at Johns Hopkins University. (6 refs.) - *A. C. Schenker.*

University of Nijmegen
Nijmegen, the Netherlands

3431 **DIGNAN, PETER ST. J.** Polydactyly in Down's syndrome. *American Journal of Mental Deficiency*, 77(5):486-491, 1973.

Four cases of polydactyly associated with Down's syndrome are described, in connection with a review of 116 such cases over a 10-year period. The dermatoglyphic patterns of the first case were all ulnar loops on the fingertips; those of the second case were similar to the first, with the exception of the second finger on the left hand and both fourth fingers, which had radial loop patterns; those of the third case were also ulnar loops on the fingertips, as were those of the fourth case. Other malformations included extra digits, shortening of phalanges, fusiform fingers, and clinodactyly. The patients were all white and without family histories of supernumerary digits; the 4 cases had preaxial polydactyly in contrast to the most common form of polydactyly in blacks which is postaxial. Syndactyly has been noted to occur in Down's syndrome, particularly of the toes; 9 of the 116 cases reviewed had this deformity. The presence of polydactyly is not considered to have predictable associations when occurring in persons with Down's syndrome. (22 refs.) - *A. C. Schenker.*

University of Cincinnati
Cincinnati, Ohio 45229

3432 **CRANDALL, BARBARA F.; MULLER, HELGA M.; & BASS, HAROLD N.** Partial trisomy of chromosome number 15 identified by trypsin-Giemsa banding. *American Journal of Mental Deficiency*, 77(5):571-578, 1973.

Two retarded 11-year-old boys, with partial trisomy of chromosome No. 15, are presented. The initial chromosome analysis revealed an additional small acrocentric chromosome without the phenotype of Down's syndrome. Trypsin-Giemsa studies clearly differentiated this chromosome from the No. 22 and the banding pattern matched a deleted No. 15. Both patients were moderately retarded and hyperactive, and both had a history of seizures. Autoradiographic studies have usually identified the additional chromosome in D trisomy as a No. 13, No. 15 being rarely implicated in this trisomy; however, other children afflicted with similar clinical findings and exhibiting minor physical defects may remain undiagnosed. (16 refs.) - *A. C. Schenker.*

George Peabody College for
Teachers
Nashville, Tennessee 37203

3433 **HAHNEMANN, NIELS.** Chromosome studies in induced abortions. *Clinical Genetics*, 4(4):328-332, 1973.

Karyotypes of induced abortions in a Danish population are described at various stages of gestation. The karyotypes of 172 induced abortions were derived from cultures of fetal material, including skin, placenta, amnion, and amniotic fluid. The 6 cases of chromosomal aberrations included: 47,XY, + G; 46XX/47,XX + C; 46,XX/47,XX + G; 47,XX, + C; 47,XX + E; and 47,XX, + C. Most of the aberrations were found in extraembryonic fetal tissues; 2 cases of 46,XX/47,XX mosaicism were found in cultures from placental tissues. The 3 C-trisomies were diagnosed at gestational ages of 74, 71, and 65 days, respectively; it is likely that some of these

abnormal fetuses would have been expelled spontaneously at a later gestational age. The results support the concept that cultures from extraembryonic fetal tissue properly reflect the fetal karyotype. (10 refs.) - *A. C. Schenker.*

University Institute of Medical
Genetics
Tagensvej 14
DK-2200 Copenhagen N, Denmark

3434 **FRIEDRICH, URSULA; & NIELSEN, JOHANNES.** Chromosome studies in 5,049 consecutive newborn children. *Clinical Genetics*, 4(4):333-343, 1973.

The incidence and possible causes of chromosome abnormalities were studied in 5,049 newborn children. Major chromosome abnormalities were found in 27 of the 2,615 boys, and in 16 of the 2,434 girls; 15 had gonosomal and 28 autosomal abnormalities. The total incidence of chromosome abnormalities was 8.5/1,000. In 6 series of such studies (including the present one) the incidence varied from 3.51 to 8.53, which is attributed to differences in screening procedure. Only 1 of the 15 children with sex chromosome abnormalities could be diagnosed at the time of birth as having a possible chromosomal syndrome (Turner's syndrome); there were minor genital malformations in 3 of 4 boys with Klinefelter's syndrome, but no congenital malformations were found in the remaining 11 children with sex chromosome abnormalities. The only children with autosomal chromosome abnormalities who could be diagnosed clinically at birth were one boy with Patau's syndrome and 4 children with Down's syndrome. Although specific therapy is not available for patients with chromosome anomalies, diagnosis at birth presents a possibility for symptomatic treatment. (15 refs.) - *A. C. Schenker.*

Arhus State Hospital
Arhus, Denmark

3435 ***BAUGHMAN, FRED A.; HIGGINS, JAMES V.; & MANN, JOSEPH D.** Sex chromosome anomalies and essential tremor. *Neurology*, 23(6):623-625, 1973.

Essential tremor may often be familial, as transmitted by an autosomal dominant trait. Pathologic studies of the cerebellar system, nervous system, or genetic mechanism have not established the sex-linked or sex-limited forms of essential tremor. Nevertheless, it seems apparent that the tremor is a component positively correlated with male supernumerary X syndromes and possibly male supernumerary Y syndromes. Studies of females with supernumerary X chromosomes are needed to extend knowledge of the genetic causation of essential tremor. (8 refs.) - *C. Wares.*

*Blodgett Memorial and Butterworth
Hospitals
Grand Rapids, Michigan

MEDICAL ASPECTS — Etiologic Groupings

Miscellany

3436 **MAYO, OLIVER; *NELSON, MATILDA M; & TOWNSEND, H.R.A.** Three more "happy puppets." *Developmental Medicine and Child Neurology*, 15(1):63-69, 1973.

The absence of any remarkable family history for three more children exhibiting characteristic features of the "happy puppet" syndrome provides further support for the absence of genetic factors in the etiology of this syndrome. All 3 were severely retarded, both physically and mentally, and exhibited the typical microcephaly, jerky movements, and frequent laughter common to the syndrome. EEGs showed recognizable spike wave complexes and symmetrical θ rhythms, mostly between 4 and 6Hz. (3 refs.) - *N. Mize.*

*University of Cape Town
Medical School
Cape Town, South Africa

3437 **KARPATI, GEORGE; CARPENTER, STIRLING; WATTERS, GORDON V.; EISEN, ANDREW A.; & ANDERMANN, FREDERICK.** Infantile myotonic dystrophy. Histochemical and electron microscopic features in skeletal muscle. *Neurology*, 23(10):1066-1077, 1973.

Muscle biopsies were studied from 4 unrelated children of myotonic mothers in whom the signs and symptoms of myotonic dystrophy were present in the newborn period and persisted in later life. All biopsies from children were obtained from the gastrocnemius muscles. Gastrocnemius biopsies were also studied from the mothers of 2 patients and from 4 other adult patients with myotonic dystrophy. Neither clinical nor electrographic myotonia was found to be elicitable before age 2. By light microscopy, type I fiber hypotrophy was found in adult and infantile forms, but this and sarcoplasmic masses, ring fibers, and central nuclei were much more prevalent in adults. Infantile cases were characterized by the presence of acid phosphatase positive areas in most of the extra and intrafusal muscle fibers. Electron microscopy in infantile cases revealed disoriented myofilaments on the periphery of muscle cells and the presence of dense core tubules in the same general region. The lack of acid phosphatase activity in a patient over 6 years old, its diminution in the second biopsy from a patient studied at age 1 and ½, and 4 years, and its absence in most of the adult patients suggested that acid phosphatase positive sites in the muscle fibers are related to the early phases of the disease process and do not appear to be correlated with myotonia. (36 refs.) - *B. J. Grylack.*

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Montreal, Quebec, Canada

DEVELOPMENTAL ASPECTS – Physical

3438 **PURPURA, DOMINICK P.** Analysis of morphophysiological development processes in mammalian brain. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 5, pp. 79-112.

The nature of the developmental processes in the immature feline brain is presented from the viewpoint of changing morphological and physiological properties of cortical neurons and their synaptic relations. Accumulated data point to a significant intrinsic programming of neuronal differentiation and early synaptogenesis in the cerebral cortex, particularly as regards synaptic pathways to apical dendrites of pyramidal neurons. Despite the relative paucity of synapses on cortical neurons in the immediate neonatal period, such neurons in visual and somatosensory cortex appear to be morphologically and functionally organized in columnar arrays similar to those described in adult animals. A wide variety of brainstem and spinal reflex activities are functionally mature in the newborn kitten, particularly those subserving adaptation of the neonatal animal to its extrauterine environment. Preliminary morphological studies of different brainstem organizations have as yet failed to reveal significant differences in the maturational status of neurons in different parts of the lower brainstem in areas considered to regulate behavioral states in newborn and young animals. (88 refs.) - *A. C. Schenker.*

Albert Einstein College of Medicine
Yeshiva University
Bronx, New York

3439 **CRAIN, STANLEY M.** Tissue culture studies of central nervous system maturation. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 6, pp. 113-131.

A model system for studies of developing brain functions is described by the use of cultures of immature cell tissues. Thus, during the first 2 or 3 days after explantation of 14-day fetal rat spinal cord, a stage shortly before synapses can be detected, only simple spike potentials can be elicited by electrical stimuli. By 4 days, facilitation effects can be demonstrated in the cord explants. The onset of complex bioelectrical activity in mouse cerebral explants after 4 days *in vitro* is consonant with the paucity of synaptic junctions detectable in electron micrographs of the tissues. Many of the central nervous system (CNS) cultures can be utilized as model systems for studies of disturbances of brain maturation; mechanisms underlying formation, as well as suppression of hyperexcitable CNS networks *in vitro*, are relevant to problems associated with epilepsy, selective pharmacological and immunological agents, metabolic inhibitors, enzymes, and others. Chronic exposure to immunological agents which selectively inactivate functionally significant sites on neuronal or glial membranes is another approach which is being applied to CNS cultures. (54 refs.) - *A. C. Schenker.*

Albert Einstein College of Medicine
Bronx, New York

3440 **WOLFF, PETER H.** Organization of behavior in the first three months of life. In: Nurnberger, John I., ed. *Biological and*

Environmental Determinants of Early Development. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 7, pp. 132-153.

Species-specific coordinations between organism and environment which influence the course of early social and intellectual adaptation are discussed. The states of the young infant may be regarded as the organizational framework which determines how (and how vigorously) the infant will act spontaneously or in response to visceral or environmental stimulation. The structure of regular, or irregular, sleep, the cycling of regular sleep, and the mechanisms for smooth state transitions may be considered as part of the prefunctional structure of behavior. The establishment of sleep patterns is influenced profoundly by the social environment and particularly by the caretaker's way of arranging the baby's daily life. The development of waking states demonstrates the same interaction of prefunctional elements and experience. Unlike sleep states whose basic cyclical character appears to be regulated by a physiological clock, patterns of waking are determined by an interaction of prefunctional structures, organic variables, and the infant's active adaptive relation to his environment. The exercise of sensorimotor functions and the alert waking state are interdependent aspects of one behavioral organization. (22 refs.) - *A. C. Schenker.*

Harvard Medical School
Boston, Massachusetts

3441 **MENYUK, PAULA.** The developmental implications of deviant language acquisition. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 11, pp. 210-220.

Language disorders of different types are discussed, and a study is presented which helps to identify the language problems encountered. The Ss comprised 13 normal speaking children who were attending a private nursery school and 13 deviant speaking children diagnosed as having delayed speech problems. Three sets of language stimuli were given for repetition: sentences of 3-5 words that were imperative, active-declarative, negative, and questions; a set of 5-word active-declarative sentences in which singleton consonants appeared in the initial, medial, and final positions; and 2 sets of nonsense syllables in strings of 3 in which consonants in all 3 positions were repeated in one set and the consonant altered according to manner and place in the other set. The overall findings showed that the children who spoke normally could repeat all types of stimuli more accurately than the children who were deviant in speech. The latter had difficulties with structure of the utterance, and the percentage of phonological errors was significantly greater with nonsense syllables than with words. The high correlation between percentage of syntactic errors and percentage of phonological errors in both nonsense syllables and words may reflect a general disability in analyzing the complete structure of linguistic inputs. (5 refs.) - *A. C. Schenker.*

Boston University School of Education
Massachusetts Institute of Technology
Boston, Massachusetts

3442 **DEMYER, WILLIAM E.** Development of axonal pathways after neurosurgical lesions in the septum of the fetal rat: fornix ventralis, commissure of the fornix ventralis, corpus callosum and anterior commissure. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 15, pp. 269-282.

The development of the corpus callosum, anterior commissure, and hippocampal efferent systems after midsaggital lesions of the septum and commissural bed is described in the fetal rat; the direction, course, and termination of axons were studied. Rats subjected to destruction of the septal region on day 16.5 of gestation were sacrificed, and the brains were serially sectioned and prepared for study of axonal growth. The study revealed that each axonal system contains sufficient information to reach its destination in the absence of its mate from the opposite side. Unilateral crossing at the commissural or decussation bed occurs when only the tract from one side is present. Fornix axons got through to the hypothalamus even though the gray matter of the septum was severely deficient and the bed nuclei of the anterior commissure and stria terminalis were distorted or destroyed, provided that some

tissue continuity was preserved. Any failure of the axons to traverse a lesion site may be due to the nature of the lesion rather than to inadequate growth potentialities of the axon. However, axons do not detour or cross cavities where lesions occur. (10 refs.) - *A. C. Schenker.*

Indiana University School of
Medicine
Indianapolis, Indiana

3443 **FALKNER, FRANK.** Long term developmental studies: a critique. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 22, pp. 412-421.

The longitudinal study of human development is compared with the cross-sectional and a compromise of the two is proposed: the mixed longitudinal study. A reasonable set of criteria for a study to be considered longitudinal includes: the observation of changes must be made over a suitable period of time; there must be more than one observation, and measurements must be made before change occurs; and the original and subsequent observations must be made on the same individuals or their survivors or on a subsample of these individuals. Longitudinal and cross-sectional studies may be combined; in this case the possibility of retrieving and storing the resulting data in accessible form should be explored. Basic experimental studies of animals, following similar methods, are usually contributory, especially if carried out concomitantly. One of the great needs is for studies which link patterns of development and health in childhood with measures of health and sickness at later ages. A vital area for longitudinal studies is development in the period from conception to birth and the relation of these patterns to postnatal development. (9 refs.) - *A. C. Schenker.*

Fels Division of Pediatric Research
University of Cincinnati College
of Medicine
Cincinnati, Ohio

3444 **KRETCHMER, NORMAN.** Developmental biochemistry: the central nervous system. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 1, pp. 1-9.

A few specific aspects of developmental biochemistry are considered, as applied to the nervous system information derived from investigation of other organs. Two different approaches in developmental biochemistry are delineated: one which is concerned with overall development of the organ which is governed in part by changes in cellular populations, and the other concerned with development of the cell as determined by specific molecular-genetic changes. Cajal (studying neonatal rat cerebellum) distinguished the cells in the superficial part, which were constantly dividing (phase embryonal) in contrast to the differentiated cells. The division of embryonal cells ceases at 20-25 days postnatally in the rat. In the mouse, the DNA in the cerebellum increases 5 times in the first 2 weeks, when mitosis ceases. Biochemical evidence of differentiation is demonstrated by the activities of carbamyl phosphate synthetase, aspartate transcarbamylase, uridine kinase, and DNA. A clear delineation of the biochemical processes in neural cellular development could probably be attained with the use of tissue culture coupled with cellular synchronization. (16 refs.) - *A. C. Schenker.*

Stanford University School of
Medicine
Stanford, California

3445 **SYLVESTER, P. E.** The testes in the mentally handicapped. *Journal of Mental Deficiency Research*, 17(1):52-57, 1973.

Postmortem evaluation of testicular histology in 50 inst MR adult males showed a variety of pathologic conditions in 68%, with azoospermia being present in the testes of 21 patients and reduced spermatogenic activity in the testes of 13 others. Fibrosis was common, occurring around the tubules in 15 cases and interstitially in 11 others. Among the group of 16 normal patients, 6 brains appeared normal. Among the 34 patients with pathologic conditions, 6 brains appeared normal anatomically, 3 of them from patients with Down's syndrome. There was 1 instance of cerebellar pathology in the first group and 8 instances in the second group. Histologically, the anterior hypophyses in the first group appeared normal with 2 exceptions. In the second group, 5 glands showed predominantly basophilic chromo-

phobic responses, and the anterior lobes of the glands in 2 other instances had suffered pressure atrophy. The 14% incidence of pituitary abnormality did not differ from the incidence found in a larger sample of 235 adenohypophyses from MR persons of either sex. Obstruction to the renal outflow tract occurred 7 times, but only in 1 was there normal spermatogenesis. (9 refs.) - *B. J. Grylack.*

St. Lawrence's Hospital
Caterham, Surrey CR 3 5YA, England

3446 **RUNDLE, A. T.; & SYLVESTER, P. E.** Evaluation of physical maturity in adolescent mentally retarded boys. *Journal of Mental Deficiency Research*, 17(2):89-96, 1973.

An assessment was made of the applicability of the Bourtourline-Young *et al.* (1968) formula for pubertal maturity, derived from data on normal children, to the maturation of MR children. To test the equation, stated as 0.5 (pubic hair rating) + 0.4 (testicular volume rating) + 0.3 (axillary hair rating) + 0.5 = pubertal age, 69 boys with a CA range of 10 to 17 years were measured for pubic and axillary hair, genital development, testicular volume, skinfold thickness, skeletal age, and various other anthropometric data. Comparison of correlations between pubertal index and these variables with those of Bourtourline-Young *et al.* showed that, with the exceptions of skeletal age and weight, the MR data did not correlate as well as that gathered on normal Ss. While the pubertal maturity equation can be of great use to the pediatrician dealing with normal children, its widespread use in populations where anomalies arising from divergent causes are to be expected is not recommended. (16 refs.) - *B. J. Grylack.*

St. Lawrence's Hospital
Caterham, Surrey, England

3447 **MCCURLEY, R.; MACKAY, D. N.; & SCALLY, B. G.** The life expectation of the mentally subnormal under community and hospital care. *Journal of Mental Deficiency Research*, 16(1):57-66, 1972.

The comparative mortality trends of the mentally subnormal in Northern Ireland in hospitals and under community care were evaluated. Within the 10-year period of 1959-1968, proportionately more deaths occurred in hospitals than in the community. The overall rate of mortality for subnormals consistently exceeded that for the general population except in 2 years, most deaths occurring among imbeciles and the fewest among the feebleminded. Although the ages at death of the females in the undifferentiated and familial diagnostic categories were lower than those of the males, it appeared that mongol females enjoy a longer life span than male mongols. Most of the mongols died as a result of respiratory infection and congenital heart disease. (16 refs.) - *B. J. Grylack.*

Queen's University of Belfast
Belfast, Northern Ireland

3448 **BORUS, JUDITH F.** Acoustic impedance measurements with hard of hearing mentally retarded children. *Journal of Mental Deficiency Research*, 16(3 + 4):196-202, 1972.

Audiometric data were obtained in 23 MR children, together with various impedance measurements; by comparing these 2 sources of data, the value of impedance audiometry as a diagnostic tool was estimated. It was found that certain impedance measurements (the acoustic reflex and tympanometry, which related best to the audiograms) seem to provide a simple, quick, and apparently effective means of making a judgment as to the site of lesion in young MR, hard-of-hearing children. (12 refs.) - *A. C. Schenker.*

Nisonger Center for Mental Retardation
Ohio State University
Columbus, Ohio

3449 **WEAVER, L. A.; & RAVARIS, C. L.** Psychomotor performance of mental retardates. *Journal of Mental Deficiency Research*, 16(2):76-83, 1972.

The performance of 272 hospitalized MR patients was compared with that of a normative sample of hospitalized mentally ill (MI) patients, and a test battery was used to differentiate the MR Ss into mildly and moderately MR groups. The test battery used included: reaction time, tapping, serial reaction time (self-paced tapping on target discs as indicated by stimulus lamps), and trans-

port-assembly tapping, measured separately as assembly and transport scores. The results revealed that the MR, as a group, did more poorly than the MI group. The ability of the test battery to distinguish between mild and moderate MR was clearly established; this finding in terms of psychomotor tests is in agreement with other publications, but the extent to which this differentiation was based on the factor of intelligence is unknown. (18 refs.) - *A. C. Schenker.*

University of Vermont
Burlington, Vermont 05401

3450 **GRANTHAM-MCGREGOR, SALLY M.; & DESAI, P.** Head circumferences of Jamaican infants. *Developmental Medicine and Child Neurology*, 15(4):441-446, 1973.

Measurements of head circumference were made regularly during the first year of life for 271 urban Jamaican infants of a generally low socioeconomic class. While head size increased relatively quickly during the early months, the rate of growth was significantly slowed in later months. The same growth pattern was observed with respect to height and weight. Evidence for or against radial differences in head size was inconclusive. Additionally, it is suggested that the prevalence of malnutrition and a generally unstimulating environment among this population may make head size a useful predictor of subsequent MR. (20 refs.) - *N. Mize.*

University of West Indies
Kingston 7, Jamaica

3451 **MORRISON, DELMONT; & POTHIER, PATRICIA.** Two different remedial motor training programs and the development of mentally retarded pre-schoolers. *American Journal of Mental Deficiency*, 77(3):251-258, 1972.

Nine MR children (average age, 49 months) participating in a 6-month program of social reinforcement for gross-motor activities prescribed on the basis of a developmental assessment of sensorimotor deficiencies (S-M Training Group) showed significantly greater gains in development than did 18 other MR programs. Specifically, the S-M Training Group demonstrated significantly greater gains in overall development, gross motor development, and language development than did the groups utilizing programs of randomly selected activities with social attention or social reinforcement for casually selected gross motor activities. All children were ambulatory and were randomly assigned to one of the 3 experimental groups. These results demonstrate the advantages of a detailed assessment of the individual child's sensorimotor development as the appropriate basis for selecting a remedial motor training program. (13 refs.) - *N. Mize.*

University of California
San Francisco, California 94122

3452 **JOHNSON, CHARLES F.** Limits on the measurement of activity level in children using ultrasound and photoelectric cells. *American Journal of Mental Deficiency*, 77(3):301-310, 1972.

In a controlled comparison with photoelectric cells, the Alton ultrasonic device (AUD) has been found unreliable for the detection and measurement of gross and fine motor activity. The 2 devices were employed simultaneously to measure the activity level of MR children confined in a large enclosure. The sensitivity of the ultrasound varied with time, with placement of the transducer, with moving object placement, and with rate of movement. Finger movement and very slow activity went undetected, while ultrasonic "noise" was erroneously recorded as movement. Additionally, rapid or mass movement overloaded the device. Overall, the idiosyncrasies of the ultrasound device detected in this study do not support previous claims of its superiority over other systems. Neither device tested is as yet a suitable "replacement" for the trained observer. (30 refs.) - *N. Mize.*

University Hospital School
The University of Iowa
Iowa City, Iowa 52240

3453 **GRUEN, GERALD E.; & KORTE, JOHN.** Information processing in familially retarded and nonretarded children. *American Journal of Mental Deficiency*, 78(1):82-88, 1973.

The performance of familially MR and MR children on tasks of differing difficulty was studied in 50 Ss (25 MR and 25 nonMR). The S was

presented with an answer sheet containing either 4 or 8 numbered patterns, each of which was composed of 4 or 8 binary elements. A problem board in which one of the patterns was concealed under movable shutters was presented to the S, who was asked to identify the concealed pattern by uncovering as few of its elements as possible. The performance of the 2 groups (matched for MA) was compared for 5 dependent variables: the strategy score, total number of moves made, the number of noninformative (redundant) moves, mean reaction time, and number of gambling moves. The only significant Intelligence Level X Task Difficulty interaction was in the variable reaction time to first move. The MR children actually responded more rapidly on the 8-choice than 4-choice problems, which indicates that they responded more randomly on the 8-choice problems. The most striking difference in the performance between the 2 groups was in the number of redundant moves made; 80% of the MR made at least 1 redundant move as compared to 44% of the nonMR. (11 refs.) - *A. C. Schenker.*

Purdue University
Lafayette, Indiana 47907

3454 **BERKSON, GERSHON.** Visual defect does not produce stereotyped movements. *American Journal of Mental Deficiency*, 78(1):89-94, 1973.

Seven sighted crab-eating macaques were compared with 7 blinded monkeys during their first year for stereotype; all were reared in social isolation, starting at 6 weeks of age. At 6, 9, and 12 months of age, the animals were tested outside of their own cages for the following behavior categories: developmental stereotypy, cage stereotypy, vocalization, orient observer, threaten observer, locomotion, above middle of cage, manipulate self, mouth self, manipulate environment, and mouth environment. The animals were again observed in their home cages when they were 12-13 months old. It was found that blind infant monkeys do develop stereotyped movements but no more than do the sighted animals when all are socially deprived. It thus seems that stereotypy is not a consequence of loss of vision during the early developmental period, but a consequence of a disordered relationship between the individual and his physical and/or social environment during that time. The experiments suggest that stereotypy in humans is an inborn potentiality which may be expressed under condition of deficiency in maternal care, the pace of development of the child, and the influence of intrinsic reinforcing stimuli and extrinsic rewards and punishments. (17 refs.) - *A. C. Schenker.*

Illinois State Pediatric
Institute
Chicago, Illinois 60608

3455 **SAMPSON, OLIVE C.** Speech development and improvement in the severely subnormal child. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 15, p. 122-130.

Problems presented by the speech of the severely subnormal, contributions to the understanding of these, and methods of approach to speech improvement are discussed. The speech problems of these Ss concern expression, comprehension, and articulation; their speech is late and slow to develop and reaches only a limited standard; their grasp is limited and they often seem inattentive in a language situation; their articulation is frequently imperfect, and they have difficulty in making themselves understood. Modern psychology, which has thrown light on this subject, deals with the relation of speech to thought and to social-emotional adjustment. The practical approach points in the direction of appropriate methods which include: taking mental age and speech stage into account in teaching speech; keeping the child's mind elastic and receptive (with playthings); and the use of informal methods, always keeping to the level of the child's ability to grasp meaning. In the light of the modern emphasis on environmental factors, attempts are being made to help and counsel parents so that they may be better equipped to provide language stimulation in the preschool years. (50 refs.) - *A. C. Schenker.*

3456 **STENGELHOFEN, J.; DAVIES, C. L.; & GRUNWELL, P.** Speech defects in children. *British Medical Journal*, 1(5856):803-804, 1973. (Letter)

Certain doubts as to the proficiency of a study on speech defects in children have arisen due to a report on procedures of the study. The study had no speech therapist on the assessment team, the

test of speech ability was poorly conceived and administered, the seeming ignorance of certain types of speech defects was apparent, and dialectal factors were entirely discounted in the study. Furthermore, the recommendations of the study are not practical in terms of effective therapy for children who are found to have speech defects. (4 refs.) - *C. Wares.*

City of Birmingham Polytechnic
Birmingham, England

3457 **SWITZKY, HARVEY N.; & HAYWOOD, H. CARL.** Conjugate control of motor activity in mentally retarded persons. *American Journal of Mental Deficiency*, 77(5):567-570, 1973.

Inst moderately MR adolescents and adults were placed on a conjugate reinforcement schedule for ordered visual stimulation while their gross motor activity was monitored (with an ultrasonic motion detector) and plotted as a function of variations in schedule; the relationship between sensory and motor activity was investigated. Films were presented to 9 male and 9 female Ss who were free of gross visual defects. At the grossest level of analysis, the different conditions were associated with significantly different rates of gross motor movement, suggesting that individual rates of motor activity may be under voluntary control. To determine whether increased sensory stimulation is associated with decreased rates of motor activity, results were compared with a no-movie baseline and a movie baseline reference; the recorded mean number of movements was 204 for the former and 108 for the latter. It was also found that the Ss could learn to control gross motor activity by demonstrating that a conjugate schedule of reinforcement is capable of altering activity rates in both directions. It is possible that overactive individuals may be thus trained to reduce their gross motor activity. (10 refs.) - *A. C. Schenker.*

George Peabody College for
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Nashville, Tennessee 37203

DEVELOPMENTAL ASPECTS — Mental

3458 **FISHER, MARY ANN; & ZEAMAN, DAVID.** An attention-retention theory of retardate discrimination learning. In: Ellis, Norman R., ed., *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 5, pp. 169-256.

An attention-retention (A-R) theory of MR discrimination learning is presented together with empirical support in the form of 40 experimental effects deducible from the theory. It states that MR, in solving a 2-choice visual discrimination, may learn to attend to one or more of the variable dimensions of the discriminative display. The cues of these dimensions may, through learning, become associated with reward values which then control approach or avoidance responses. The A-R theory can help in the study of MR in at least 2 ways: it can tell us how an MR learns, extinguishes, transfers, remembers, and attends to some simple kinds of discriminative information; and it can distinguish between control processes and structural features. Since individual differences in intelligence are highly stable traits in the MR population, only stable parameters—those representing structural features—are meaningfully relatable to intelligence. The structural features of the A-R theory are: learning and extinction, short-memory decay rate, and upper limit of rehearsal capacity. Individual differences in retardees are related to memory, rather than learning, extinction, or attention. (105 refs.) - *A. C. Schenker.*

University of Connecticut
Storrs, Connecticut

3459 **KAPPAUF, WILLIAM E.** Studying the relationship of task performance to the variables of chronological age, mental age, and IQ. In: Ellis, Norman R., ed., *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 6, pp. 257-317.

Studies of performance in relation to CA, MA, and IQ are presented, together with informal interpretations and proposals for the design and analysis of future experiments. A graphic approach is endorsed, based on a plot of performance measures on a

grid which has scales for CA and for IQ as its orthogonal axes and which includes an inset family of iso-MA lines. By this model, it is possible to see and describe the manner in which performance varies with CA, MA, and IQ. Among the implications of the graphic response surface approach, the most critical is the requirement that enough groups of Ss from retardate to normal and above be tested (9 groups or more). The model proposed is a monotonic, horizontally ruled surface and can be tested for any set of data using curve-fitting methods. Possibilities to be explored are that test parameters shift the level of the response surface but not its basic shape, or that the trade-off relation between CA and IQ will vary for different tasks, or other relevant problems. (47 refs.) - *A. C. Schenker.*

University of Illinois at
Urbana-Champaign
Champaign, Illinois

3460 **FOREHAND, R.; CALHOUN, KAREN; PEED, S.; & YODER, PAM.** The effects of intelligence quotient and extraneous stimulation on incidental learning. *Journal of Mental Deficiency Research*, 17(1):24-27, 1973.

The effects of white noise and varied noise on the naming and memorization of illustrated colors and objects by 27 noninst MRs and 27 normal public school children matched for MA were studied. All Ss were assigned to a white noise, varied noise, or no extraneous noise experimental condition. Neither an extraneous white nor varied noise influenced the incidental learning of either group. MRs gave both more incorrect and more total responses than normals, possibly as a consequence of their greater expectancy for failure. (9 refs.) - *B. J. Grylack.*

University of Georgia
Athens, Georgia 30601

3461 **FRAAS, LOUIS A.** Intentional and incidental learning: a developmental and comparative approach. *Journal of Mental Deficiency Research*, 17(2):129-137, 1973.

Forty-nine male and forty-one female elementary and high school students participated in a comparative investigation of incidental and intentional learning in terms of the effects of possible distraction or interference effects of incidental material on intentional material. Ss were EMR students with CA 10, 13, and 16 years; MA controls with CA 7 years 6 months, 9 years 2 months, and 11 years 5 months; and CA controls. Stimuli for the paired-associate learning task were 5 geometric designs, and responses consisted of 5 pictures. The 2 learning conditions were a color condition, consisting of showing of the stimulus-response pairings in which the stimulus designs were bordered by color, and a no-color presentation. The results suggested that while intentional learning does tend to increase with CA, this tendency holds true only until 11 to 12 years of age in normal children, at which time it seems to reach an asymptote. Intentional learning also appears to increase with CA for MRs, but at a slower rate. There was no interference effect when incidental material was presented simultaneously with intentional material, and it was indicated further that there was no significant difference between the 3 groups of Ss when amount of material was considered. Both MR and normal Ss responding to the color presentations used the stimulus designs as functional (intentional) stimuli. (18 refs.) - *B. J. Grylack.*

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3462 **ALLEN, ROBERT M.; CORTAZZO, ARNOLD D.; & TOISTER, RICHARD P., eds.** *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, 160 pp. (Price unknown).

A symposium on the theories dealing with the nature of cognitive growth and development and their implications for the MR child is presented. The symposium, sponsored by the South Florida Foundation for Retarded Children, deals with new approaches to the evaluation of intelligence, new methodology in the testing of achievement, and the modern concepts regarding remedial teaching of the MR. Particular stress is laid on individual differences among the MR children and on the influence of the environment upon their responses to stimuli. The symposium represents a further effort to give the field a better understanding of how the MR learn. - *A. C. Schenker.*

CONTENTS: Why Retarded Children Do Not Perform Up to the Level of Their Ability (Zigler); The Transactional Approach in Cognitive Development: Tasks for the Teacher (Cortazzo); Borderline Retardation in Low and Middle Income Adolescents (Elkind); Cognitive Development—A Means for Maturation and Measurement (Allen & Schwartz); Psychological Assessment, Developmental Plasticity, and Heredity, With Implications for Early Education (Hunt); Some Applied and Theoretical Implications of Behavior Technology for Mental Retardation (Toister).

University of Miami
Coral Gables, Florida

3463 **HUNT, J. MCV.** Psychological assessment, developmental plasticity, and heredity, with implications for early education. In: Allen, Robert M., Cortazzo, Arnold D., & Toister, Richard P., eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 5, pp. 121-147.

A shift in the conception of what influences behavior is discussed from the viewpoint of the psychologists, in particular as it relates to assessing the intelligence of the MR. It is argued that IQ scores on tests of intelligence are valid only as an assessment of past acquisitions and have little validity as predictors of future IQs or performances without knowledge of the circumstances to be encountered. Moreover, the self-concept may well be the most important cognitive construct for the motivation of achievement and social behavior. It has further been found that the gains on tests of intelligence and achievement from various systems of compensatory education seldom persist once children are returned to their previous environments. This is probably due to the failure of these systems to provide experiences calculated to inculcate ideal self-concepts. Evidence has been produced, in the past decade, that informational interaction, especially encounters perceived visually, influences maturation within the central nervous system and suggests considerable plasticity in the maturation of the neuroanatomical equipment for information processing. Intellectual and motivational development should be fostered for the MR, taking the above concepts into consideration. (62 refs.) - *A. C. Schenker.*

University of Illinois
Urbana, Illinois

3464 **ALLEN, ROBERT M.; & SCHWARTZ, BARRY J.** Cognitive development—a means of maturation and measurement. In: Allen, Robert M., Cortazzo, Arnold D., & Toister, Richard P., eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 4, pp. 87-129.

A concept for achieving improvement in cognitive maturation for the MR is presented. This applies to residents of an inst for the MR and deals mainly with the variables significant in the activities of daily living. To ameliorate the shortcomings of the traditional organization structure, Miami Sunland Training Center replaced the vertical organizational structure by a horizontal one with 4 separate but interrelated divisions. These included: the development and training, independent living, education and training, and vocational rehabilitation divisions. Each of these has an interdisciplinary team consisting of the program director, physician, social worker, cottage group shift supervisor, cottage parents and supervisors, recreation therapists, nurse, cottage training instructors, food service workers, in-service training instructors, and other related staff. Under this structure, a two-year study showed that the MR Ss in a state inst do learn with the passage of time and exposure to experience, and the findings support the divisional concept as more favorable for both residents and staff. (13 refs.) - *A. C. Schenker.*

University of Miami
Coral Gables, Florida

3465 **ELKIND, DAVID.** Border-line retardation in low and middle income adolescents. In: Allen, Robert M., Cortazzo, Arnold D., & Toister, Richard P., eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 3, pp. 57-85.

Some varieties of borderline MR observed in clinical practice are described, and theories that have been offered to account for the test retardation in low income youth and an alternative developmental conceptualization are presented. One of the dangers social scientists constantly face is that of treating a group of individuals as if they all exhibited the same traits; test retardation

appears in both middle income and low income young people, although the patterns are somewhat different. Among middle income youth the liberated and anxious syndromes are most common, whereas for low income youth the antagonistic and ingratiating are most common. Another danger is that of interpreting intelligence test data as a reflector of genetic factors. No more reason exists for attributing the test retardation of low income adolescents to heredity than for that of middle income youth to such genetic factors. A complex of individual and social factors appears to be responsible for the production of test retardation in both groups: natural ability, birth order, nutrition, parental motivation, and the role models available for imitation. (33 refs.) - *A. C. Schenker.*

University of Rochester
Rochester, New York

3466 **CORTAZZO, ARNOLD D.** The transactional approach in cognitive development: tasks for the teacher. In: Allen, Robert M., Cortazzo, Arnold D., & Toister, Richard P., eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 2, pp. 37-55.

The importance of the environmental structure, the teaching materials, and the educational program is stressed in teaching the MR through the transactional approach. Piaget views mental development from the child to the adolescent as continuous construction that becomes more solid with each addition. The Einsteinian view incorporates Piaget's characterization of development as an adaptive process in that the child is constantly modifying the environment, and the environment is continually forcing the child to adapt himself to the given situation. In a school the behaviors of the teachers, children, principal, and parents change continuously in dealing with each other. During these transactions, the individual can perceive his own feedback or output. Much of learning and development is based on recognizing the effects of one's responses; this is what is meant by a transactional model, an important part of which is that the newer concept of intellectual development concerns the nature of readiness for learning and what determines this readiness. The proper relations between teacher and child will ensure that the child has the opportunities to develop cognitive and other skills that would otherwise remain latent. (26 refs.) - *A. C. Schenker.*

Florida Department of Health
Services
Tallahassee, Florida

3467 **ZIGLER, EDWARD.** Why retarded children do not perform up to the level of their ability. In: Allen, Robert M., Cortazzo, Arnold D., & Toister, Richard P., eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 1, pp. 13-35.

Explanations for the empirically observed disparity between the MR child's MA indicator and his performance on tasks not included in IQ assessment are presented. Difference theorists argue that IQ reflects certain features of physiological and cognitive functioning of the individual, which, in turn, affect performance on a wide variety of tasks, over and above that difference accounted for by general cognitive level attained. Unlike the cognitive factors emphasized by difference theorists, the motivational factors emphasized by the motivational theorists are not viewed as inherent in MR; MR children are more likely to have a higher incidence of certain social experiences than are normal children. These experiences then give rise to a motivational structure that interferes with optimal performance by the MR. It is within this area of socialization that much can be done to enhance the everyday effectiveness of the MR. A review is presented to support this contention. (39 refs.) - *A. C. Schenker.*

Yale University
New Haven, Connecticut

3468 **SINSON, JANICE; & WETHERICK, N. E.** Cue salience and learning in severely subnormal children: effects of varying the attention value of the cues employed in a one-trial learning situation. *Journal of Mental Deficiency Research*, 16(2):112-118, 1972.

The learning capacity of SMR children (20 mongol children compared with 20 nonmongol subnormal controls) was studied under 3 experimental conditions. The first experiment was designed to

establish whether the Ss could learn to discriminate on the basis of shape and color simultaneously or on the basis of each separately. Experiment 2 was concerned with discrimination on the basis of shape only, and experiment 3 was concerned with discrimination on the basis of color only. It was found that the SMR could not learn a one-dimension discrimination based on shape or color in one rewarded trial. Mongols could, however, learn a two-dimension discrimination where color and shape were perfectly correlated. The mere receipt of a reward was found to be insufficient in these learning situations; the reward must be perceptually identical to the cue characteristics for learning to occur. Nonmongols could learn to employ individual characteristics of shape or color in this way; mongols could employ shape but probably not color. The SMR appears to lack the capacity to set up a subsidiary goal on the way to attaining a primary goal. (7 refs.) - *A. C. Schenker.*

Leeds and District Society for
Mentally Handicapped Children's
Preschool Unit
Leeds 7, England

3469 **HUTTENLOCHER, PETER R.; & HUTTENLOCHER, JANELLEN.** A study of children with hyperlexia. *Neurology*, 23(10):1107-1116. 1973.

Three children with hyperlexia who were capable of communicating to some extent were tested to determine the nature of their precocious reading ability and their intellectual deficit. Ss were compared for their skill in carrying out 2-part and 3-part directions read aloud to them or printed on cards that they read to themselves, and tests for memory, apraxia and agnosia, and mathematical ability were administered. The children were tested at approximately the same age, between 4 years 11 months and 5 years 2 months. The 2 who could read well enough to carry out written commands received the same series of written and oral instructions, while the third child was given only oral commands. All Ss performed rather poorly on orally presented commands as compared with normal 5-year-olds. These low scores were not found to be secondary to a memory defect. All 3 had finger agnosia, and inability to copy a simple shape was considered secondary to an apraxia in one child. They appeared to perform mathematical tasks by rote, with little evidence of understanding. The occurrence of a basic language deficit, apparently in the association between speech symbols and meaning, in conjunction with apraxia suggested a parietal lobe disorder. (22 refs.) - *B. J. Grylack.*

Yale University School of
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New Haven, Connecticut 06510

3470 **CROMER, RICHARD F.** Learning of linguistic surface structure cues to deep structure by educationally subnormal children. *American Journal of Mental Deficiency*, 77(3):346-353, 1972.

The performance of 31 EMR children (CA 7-1 to 16-1 years; mean IQ, 62.5) on a learning task designed to reflect the level of language development suggests that the EMR children are no more "rule-bound" than are normal children. The major difference between normal and MR children was in the type of response strategy employed, not in the frequency with which fixed rules were used. The EMR children all lacked the more sophisticated response strategy, the O-rule strategy, indicative of an attempt to extract deep structural information about new words from the differentiating linguistic frames. The fact that the EMR group was limited to a fixed response strategy of a more primitive type than that found in normal children suggests that the more sophisticated strategy may be a specific feature of a critical period of language acquisition. (13 refs.) - *N. Mize.*

Drayton House, Gordon Street
London WC 1, England

3471 **RAMANAUSKAS, SIGITA.** Contextual constraints beyond a sentence on cloze responses of mentally retarded children. *American Journal of Mental Deficiency*, 77(3):338-345, 1972.

The performance of 58 EMR children enrolled in junior high level special classes on 2 cloze tasks with differing contextual constraints—one containing sentences in the natural order of discourse (NAT) and the other using random order sentences (MOD)—strongly suggests that the MR Ss were responding to contextual cues beyond a sentence. This is indicated by the significantly greater number of correct cloze responses produced with the NAT material. From these findings, the charac-

terization of MR children as simple "word callers" would seem to be clearly inadequate. Knowing that MR children respond to linguistic organization beyond a printed sentence, an appropriate educational strategy would include the construction of tasks which assure a strong continuity of semantic and syntactic cues. (36 refs.) - *N. Mize.*

University of Connecticut
Storrs, Connecticut 06268

3472 **KLEIN, HELEN A.; KLEIN, GARY A.; OSKAMP, LINDA; & PATNODE, CAMILLA.** Color distractors in discrimination with retarded and nonretarded children. *American Journal of Mental Deficiency*, 77(3):328-331, 1972.

The pattern of orienting reflexes measured physiologically on the photoplethysmograph during a series of discrimination trials administered to 10 non-MR children (CA 6-7 yrs) and to 10 EMR children (CA 6-10 yrs) was found not to distinguish significantly between the 2 groups or between color-distractor vs non-distractor trials. Overall, the MR children exhibited significantly more errors than the non-MR children and showed a significantly greater color distractibility. (16 refs.) - *N. Mize.*

Wayne State University
Detroit, Michigan 48202

3473 **LIBKUMAN, TERRY M.** Word frequency and pronunciation and the verbal-discrimination learning of nonretarded and retarded children. *American Journal of Mental Deficiency*, 77(3),:322-327, 1972.

The predictive value of an extended version of frequency theory was evaluated by using MA-matched samples of MR and non-MR children from the same school system. All 128 Ss were given an associative matching task immediately after verbal discrimination (VD) learning was demonstrated. While the MR children required more trials than the non-MR Ss to learn a VD task, no frequency x intelligence interaction was demonstrated. Contrary to frequency theory predictions, increasing frequency had an equally adverse effect on both groups. Additionally, no interaction occurred between pronunciation and intelligence, a finding in line with original predictions, and no support for an incidental learning deficit in the MR Ss was demonstrated. (17 refs.) - *N. Mize.*

Central Michigan University
Mount Pleasant, Michigan 48858

3474 **STEPHENS, WYATT.** Equivalence formation by retarded and nonretarded children at different mental ages. *American Journal of Mental Deficiency*, 77(3):311-313, 1972.

A comparison of 84 MR and non-MR children divided into groups representing three different MA levels suggests that the preference for grouping strategies in equivalence-formation tasks is a function of MA. In this study, children of comparable MA were found to exhibit essentially the same performance patterns in the frequency of their employing the perceptibly based, functionally based, or sententially based concepts described originally by Bruner, Olver, and Greenfield in their discussion of the developmental sequences of cognitive processes. (4 refs.) - *N. Mize.*

Southern Illinois University
Carbondale, Illinois 62901

3475 **WELCH, RUSSELL F.; & DREW, CLIFFORD J.** Effects of reward anticipation and performance expectancy on the learning rate of EMR adolescents. *American Journal of Mental Deficiency*, 77(3):291-295, 1972.

An investigation into the effects of expected success or failure on the learning rate of 60 noninst EMR adolescents suggests that the effects of a reward or no-reward condition on behavior are substantially influenced by the S's performance expectancy. Overall, the anticipation of a candy bar reward of their own choosing facilitated learning rate when the Ss expected to succeed but inhibited learning rate when they expected to fail. Performance expectancy for each of the 4 experimental groups was communicated verbally by the experimenter prior to the standard learning task. (25 refs.) - *N. Mize.*

University of Utah
Salt Lake City, Utah 84112

3476 MCCONKEY, ROY; & GREEN, JOSEPHINE M. Presentation method and the free recall performance of retarded adults. *American Journal of Mental Deficiency*, 78(1):95-97, 1973.

The effects of certain presentation methods, particularly simultaneous presentation, on the free recall performance were evaluated in 24 MR adults with a mean CA of 24.56 years. The Ss were allocated to one of 3 groups: one group received auditory-sequential presentation, a second group visual-sequential presentation, and a third group visual-simultaneous presentation. Sixteen items from 4 familiar categories were used. Following each presentation, Ss were allowed 80 seconds for spoken recall. The results revealed that MR Ss recall more with visual presentation than with auditory. There were no differences among the groups in the degree of category organization; thus, visual presentation affected only amount recalled and not the order of recall. Presenting the material simultaneously did not lead to an increase in categorization during recall. MR Ss do not seem to use a detectable strategy to guide their learning. (9 refs.) - *A. C. Schenker.*

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Manchester M13 9PL, England

3477 WINTERS, JOHN J., JR.; & GOETTLER, DIANE R. One-trial learning of intellectually average and retarded children under three methods of presentation: storage and retrieval. *American Journal of Mental Deficiency*, 78(1):51-58, 1973.

Recall, recognition, and level of associative learning of equal-MA intellectually average children, equal-CA (5-, 7-, and 9-year olds) intellectually average children, and MR children were compared by using 3 different methods of presentation and 3 exposure times. Four groups of 36 Ss, 3 intellectually average and one MR, were tested. The stimuli were 8 pairs of outline drawings of common objects. After viewing the stimuli for one trial, the Ss were given a test for free recall: to name the pictures; a recognition test, to point to and name the pictures; and a matching test, to pair the pictures. Results on the matching task indicated that the associative learning had not been achieved by any group. When exposure time was increased, overall performance improved. Recognition was found to be better than recall and a greater improvement in performance was seen in the recognition task when intelligence level increased. Only in the recognition task did the MR children differ from the equal-MA intellectually average children. The selective processes in MR children are deficient in comparison with those in equal-MA average children. (23 refs.) - *A. C. Schenker.*

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Bordentown, New Jersey 08505

3478 GRUEN, GERALD E.; & BERG, BERTHOLD. Visual discrimination in familial retarded and nonretarded children. *American Journal of Mental Deficiency*, 78(1):63-69, 1973.

Differences in learning performances of 36 MR and 36 non-MR children matched for MA were studied to determine whether such differences would increase with complexity of task. The stimulus configurations were presented on a slide projector, and the S indicated his response by touching one of the 2 configurations. The procedure consisted of 3 parts: intellectual assessment, pretesting/pretraining, and concept attainment. During the concept formation task, the S was required to abstract a particular form, color, or size as the relevant cue in responding to the configurations projected on the screen. The results indicated that stimulus complexity is a significant factor on all measures. A surprising finding of this study was that Ss generally required more trials to reach criterion on the tasks where color was the relevant dimension than on tasks where either form or size was relevant. It is unlikely, however, that color discriminations are more difficult than form or size discriminations. (26 refs.) - *A. C. Schenker.*

Purdue University (Psychological
Services)
West Lafayette, Indiana 47907

3479 GRANAT, KRISTINA; & GRANAT, SVEN. Below-average intelligence and mental retardation. *American Journal of Mental Deficiency*, 78(1):27-32, 1973.

The paradoxical decline of MR after school age was investigated in a study using the psychometric

criteria established for military service in the general population. In the first step of the study an attempt was made to select a group with the same level of intelligence as a group of MR persons from an inst; and in the second step an estimate was made of the size of the group of persons who fulfilled the psychometric criterion of MR without being labeled MR. Of 2,000 men who underwent enlistment procedure, 217 with the lowest scores for the enlistment tests were chosen for further examination; 193 men were actually examined. These men were given tests which represented verbal, spatial-inductive, and numerical factors. The results showed that it was possible to select from a "normal" population a group which has the same intelligence level as mildly and borderline MR Ss. In estimating the size of the group thus selected, it was found that the percentage for Sweden of these cases in the 19-year-old men was 1.50 ± 0.56 percent. The hypothesis that two groups with low intelligence but different degrees of social competence exist is validated. (16 refs.) - *A. C. Schenker.*

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Ulleraker Hospital
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3480 **THOR, DONALD H.** Counting and tracking of sequential visual stimuli by EMR and intellectually average children. *American Journal of Mental Deficiency*, 78(1):41-46, 1973.

The nature of the observed discrepancy in counting behavior of children with equal MA and unequal IQ was explored in 2 experiments. The Ss of experiment 1 were 18 MR boys with a mean age of 15.1 years, a mean IQ of 61.7, and a mean MA of 9.3. A counting session and a tracking session were given (responses to light flashes) in counterbalanced order with 9 boys randomly assigned to each order. The data revealed highly comparable performance on tracking and counting tasks. More negative than positive errors were made on both tasks, indicating that Ss tended to underestimate total flash count. The second experiment compared 20 EMR children and 20 younger intellectually average children of equal MA on sequential tracking performance. The EMR group made errors of greater magnitude than the intellectually average group, and the magnitude of errors was larger in the arhythmic condition than in the rhythmic condition. Longer sequences of stimuli obviously present greater opportunity for error. The final response total reflects a cumulative error count, which is seen in the mildly MR children. (11 refs.) - *A. C. Schenker.*

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3481 **HERSCHKOWITZ, N.** Biology of abnormal brain development. *Pediatric Research*, 7(1):48, 1973. (Abstract)

The knowledge of the biology of abnormal brain development is useful in planning prevention and treatment of brain dysfunction. Brain development may be described in 4 main periods. Neuronal proliferation occurs at 15-25 weeks' gestation; the migratory pattern of the proliferated neurons can be disturbed by mutations, leading to an abnormal histoarchitecture which can be reflected in clinical disorders of motor coordination. From 25 weeks in gestation to the age of 1 year, the period of maximal glial proliferation occurs. Maximal neuronal differentiation occurs from 25 weeks' gestation to age 3 years. Abnormal metabolism of compounds involved in the structure of axons, dendrites, and synapses can lead to structural malformation, evidenced clinically by abnormal psychomotor development and/or convulsions. From birth to approximately 10 years, the period of myelination occurs; abnormal synthesis or degradation of myelin is manifested clinically by spasticity and ataxia. - *A. C. Schenker.*

University of Bern (Pediatrics)
Bern, Switzerland

3482 **RYAN, JOANNA.** Scientific research and individual variation. In: Clarke, A.D.B., and Clarke, A. M., eds. *Mental Retardation and Behavioural Research*. Baltimore, Williams and Wilkins, 1973, pp. 23-30.

The results of behavioral research on MR have not been useful to teachers, physicians, or parents because the research is concerned with finding common factors in MR, while teachers and caretakers must deal with individuals. There is evidence that there is greater variability among MR children than among normals. Special classes for the MR are composed of Ss having in common low IQ, but there are greater variations in CA, physical condition, and family situation than in a class for

normal children. MR children appear to receive extremes of parental care, ranging from overprotectiveness to neglect. In a study of language development, it was found that among 9 possible correlations of verbal ability with social class, 6 were statistically significant for normals, 1 for Down's MR, and 2 for non-Down's MR. There is greater heterogeneity among MR in test performance than among normals. Present research methods and approaches are inadequate to study the development of subnormal children. More information is needed concerning the ways in which parents, teachers, nurses, and other children behave towards MR children. (11 refs.) - *V. J. Goldberg.*

3483 Learning disabilities. *Medical Journal of Australia*, 1(1):2-3, 1973. (Editorial)

Learning disabilities are defined, some relevant hypotheses regarding such disturbances are reviewed, and approaches toward remedying these conditions are discussed. The essential characteristic of children with learning disabilities is the discrepancy between their potential and their actual achievement. Modern taxonomic systems recognize polythetic classes, that is, the sharing among these children of a number of characteristics in common. Some believe that reeducation of these children can best be undertaken after careful appraisal of the psychological and behavioral characteristics which the individuals display, the inference being that the mode of instruction will vary from child to child. It is also believed that the application of special educational procedures should not be to the detriment of the other needs of the child. Learning disabilities cover a wide range of disciplines, from endocrinology to many branches of psychology. One theory regarding the disorder is based on the abnormalities seen in the electroencephalography patterns of these children, the interpretation of which gives rise to 2 opposite hypotheses. Defective attention span is the basis of another hypothesis. - *A. C. Schenker.*

3484 **KERR, CHARLES.** Race, intelligence and education—continued. *Medical Journal of Australia*, 1(4):199-201, 1973.

Jensen's controversial paper, in which he developed an elaborate case for the classical doctrine of fixed intelligence, and, hence, predetermined development, is discussed. One by-product of Jensen's paper has been to rekindle interest in the IQ; through all the arguments on this subject runs the theme that a high IQ is a mandatory, but not sufficient, requirement for high achievement, whereas a low IQ means virtual failure at high academic and occupational levels. Jensen's initial conclusions on racial differences were based largely on the coefficient of hereditability; estimates of hereditability do not provide any baseline for predictive purposes. Our available technology is not yet sufficiently robust to answer genetic questions on intelligence in human society. All evidence on intelligence in middle-class white populations supports a conclusion that genetic variability accounts for about 75% of the total variance in IQ scores, but this conclusion does not hold for children reared under less advantageous conditions. According to Hunt and Kirk, the critical influence of language on levels of test performance and educational achievement is of crucial importance; the failure of communication may have been a major reason for apparent failure in special educational programs for American Negroes. The arguments are applied to Australian Aborigines. (16 refs.) - *A. C. Schenker.*

3485 **ROSWELL-HARRIS, DAPHNE.** Deprivation, intelligence and institutional progress. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 9, pp. 78-81.

Increases in intelligence quotient (I.Q.) seen in MR Ss are discussed in terms of the type of improvement they reflect. Reference is made to a previous study which showed that improvement in I.Q. can be expected even in defective young men who had been deprived of normal family life in childhood, and that these can also be expected to reap more benefit from treatment and training within an MR hospital than the nondeprived. Another study which concerned delinquents gave similar results on a test-retest situation. Whatever the reasons for changes in I.Q. level and the ability to profit from treatment and training may be, there seems to be no doubt that there is always the possibility of improvement with the most unpromising material. Individuals of low I.Q. show increases above change expectation and therefore need not be excluded from training solely on account of intelligence level, especially if they have come from homes where crime, marital disharmony,

infidelity, and indifference are the prevailing conditions. (5 refs.) - *A. C. Schenker.*

Leavesden Hospital
Abbots Langley & Bromham Hospital
Bedford, United Kingdom

3486 CASHDAN, ASHER. Learning and transfer in the subnormal: some implications for education. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 13, pp. 105-112.

Results of experimentation in the learning processes of MR children are summarized for the last 15-20 years, and suggestions are made as to their practical application. Children who spend long periods in insts are often retarded by comparison with similar children who remain at home and have the chance to develop a secure relationship with their caretaking person. It was found, with respect to education, that in a nursery-type regime, MR children improve greatly in their social and emotional life. Difficulties in learning, for the subnormal, appear to be due to the inability or unwillingness on the child's part to assimilate new knowledge; slowness and rigidity reflect his learning habits. It is important to study the individual child in detail if we are to help him grow mentally. It is believed that it is better not to press a child in areas where he has repeatedly failed, and not to push him into learning situations which he finds distasteful. (18 refs.) - *A. C. Schenker.*

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Walton Bletchley, Bucks
United Kingdom

3487 SIDMAN, MURRAY; & CRESSON, OSBORNE, JR. Reading and crossmodal transfer of stimulus equivalences in severe retardation. *American Journal of Mental Deficiency*, 77(5):515-523, 1973.

Tests based on the assumption that the auditory-visual equivalences involved in auditory comprehension transfer to the purely visual equivalences were administered to 2 SMR children inst with Down's syndrome. The children were taught identity matching and auditory comprehension followed by training match dictated to printed words. Results of tests indicate profound reading deficit did not necessarily preclude the normal transfer from learned auditory-visual stimulus equivalences to the purely visual equivalences that define simple reading comprehension. However, although both Ss learned to name words orally as a consequence of learning to match dictated to printed words, only one of them improved in picture naming. It is suggested that the 2 auditory-visual matching tasks are sufficient for the emergence of reading comprehension and can be taught by teaching machines. (16 refs.) - *A. C. Schenker.*

Northeastern University
Boston, Massachusetts 02115

3488 KELLAS, GEORGE; ASHCRAFT, MARK H.; & JOHNSON, NANCY S. Rehearsal processes in the short-term memory performance of mildly retarded adolescents. *American Journal of Mental Deficiency*, 77(5):670-679, 1973.

The role of rehearsal in the memory deficit of MR persons was investigated in 2 experiments; the first was concerned with an evaluation of the extant rehearsal processes of MR Ss. The Ss were 40 cultural-familial MR individuals; all Ss were given typical instructions for either free or serial recall. Ss in the overt rehearsal condition were instructed to rehearse aloud, and no special instructions were given to Ss in the covert condition. The results indicated that the memory deficits of MR persons may be related to the failure to rehearse actively the material to be recalled. The experimental task in the second experiment provided repeated trials on a single list, in order that the development of any spontaneous acquisition strategies might be maximized and evaluated. After a relatively simple training procedure, the Ss displayed input time functions and overt rehearsal activity which indicated active adoption of the cumulative strategy. The studies indicate that MR Ss are able to employ acquisition strategies, but the question of the MR person's cognitive understanding of the function of any strategy remains unanswered. (13 refs.) - *A. C. Schenker.*

University of Kansas
Lawrence, Kansas 66044

3489 HOLLIS, JOHN H. "Superstition": the effects of independent and contingent events on free operant responses in retar-

ded children. *American Journal of Mental Deficiency*, 77(5):585-596, 1973.

The effect of response-independent delivery of candy on stereotyped behavior and the effects of response-independent schedules of reinforcers, following the establishment of variable-interval and fixed-ratio baselines for stereotyped movements, were investigated in 6 developmentally MR children. These effects were observed in a "free-field" situation and following operant conditioning of discrete responses and their subsequent extinction. The results revealed that response-independent schedules of reinforcement accelerated abnormal stereotyped responding and failed to maintain baseline response rates following conditioned variable-interval and fixed-ratio schedules. Following extinction, the reinforcement resulted in an initial acceleration of responding, followed by a deceleration. The rate of stereotyped responding was not systematically affected by food deprivation. It is suggested that a reinforcer, delivered independently of behavior, decelerates baseline response rates following a specified schedule and accelerates baseline response rates for dominant "free-operant" behaviors, and following experimental extinction. A stimulus may acquire multiple functions with respect to a reinforcing event. (29 refs.) - *A. C. Schenker.*

Kansas State University
Manhattan, Kansas 66502

3490 **BRICKER, DIANE D.; VINCENT-SMITH, LISBETH; & BRICKER, WILLIAM A.** Receptive vocabulary: performances and selection strategies of delayed and nondelayed toddlers. *American Journal of Mental Deficiency*, 77(5):579-584, 1973.

The type of strategy that controls choice behavior in young delayed and nondelayed children was investigated in 10 children with developmental quotients below 75 and was compared with 10 whose developmental quotient was above 100. The children were divided into younger and older groups. The older nondelayed toddlers performed at almost criterion level, demonstrating the validity of the procedure to assess receptive vocabulary. The pattern analysis of the selection strategies revealed that only 21 of the possible 300 patterns could be identified as being known by the 15 children in the younger delayed, older delayed, and younger nondelayed groups. In terms of the other strategy patterns, 42 could be identified as object preference, 52 as object avoidance, and 60 as being controlled by position preference. The older nondelayed children were found to be under control of the object names, whereas the other groups were under control of the name-irrelevant tasks. (13 refs.) - *A. C. Schenker.*

George Peabody College for
Teachers
Nashville, Tennessee 37203

3491 **ODOM, PENELOPE B.; SWITZKY, HARVEY N.; & HEAL, LAIRD W.** Intellectual development and the role of salience in intentional and incidental recall. *American Journal of Mental Deficiency*, 77(5):607-615, 1973.

Perceptual sensitivity to various stimulus dimensions and the role of such sensitivity in intentional and incidental recall were evaluated in 120 children at 3 age levels and 2 IQ ranges. Salience assessment was studied by using the Peabody Audiovisual Display Apparatus, and the Ss' preference frequencies and latencies were scored. A memory task was administered for recall. All Ss performed quite similarly on the salience assessment task; salience rank of a dimension predicted its recall in both the intentional and incidental portions of the experiment. Age predicted performance on both tasks, while IQ was related to the demands of the intentional task. The findings suggested that differences between the MR and non-MR individuals cannot be found in the perceptual system of these Ss. All Ss detected information in a similar fashion. (10 refs.) - *A. C. Schenker.*

George Peabody College for
Teachers
Nashville, Tennessee 37203

3492 **TYMCHUK, ALEXANDER J.** Effects of concept familiarization vs. stimulus enhancement on verbal abstracting in institutionalized retarded delinquent boys. *American Journal of Mental Deficiency*, 77(5):551-555, 1973.

To discover whether cultural-familial MR persons may benefit from specific training strategy, 48 MR adolescent boys (15-18 years old) were randomly assigned to 2 training groups. The study was designed to determine also if training would

improve performance on a similarities task, whether it would generalize to a task containing different exemplars or different concepts, and whether such training would have a greater effect than stimulus enhancement. It was revealed that training had a significant effect while stimulus did not. Training on one set of stimulus words on one list improved performance significantly on a second list of different stimulus words for the same concepts relative to the contrast group, but did not improve performance when tested on different concepts. The results suggest that the low verbal abstracting performance, found in the cultural-familial MR individual, may be a function of a lack of familiarity with some of the higher order concepts rather than a lack of verbal abstracting ability. Most of the original responses were of a functional nature. The effect of concept familiarization was seen 30 hr. later, suggesting that continued practice of these concepts would be beneficial for maintaining performance. (11 refs.) - *A. C. Schenker.*

University of California
Los Angeles, California 90024

3493 **DAS, J. P.** Cultural deprivation and cognitive competence. In: Ellis, Norman R., ed., *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 1, pp. 1-53.

Issues involved in cultural disadvantage in children are reviewed and a selective overview of certain areas of research is presented with relevant illustrations. An environmental approach recommends an early intervention to reverse the trend of intellectual retardation found in disadvantaged children at a later stage. To this end, the measurement of intelligence in different subpopulations is presented which takes into account socioeconomic status (SES), language, nutrition, and cognitive ability. Studies have shown that parental expectation was positively related to the child's achievement and intelligence in more than one subcultural group, but the high-SES child was found superior to the low-SES child in many cognitive test performances even though attending the same school. Almost all the cognitive tests used have generally been classified as reasoning or memory tests, but a better categorization was found to be that of a simultaneous and successive processing factor. A definition of intelligence across cultures is suggested: the ability to plan and structure behavior effectively for goal attainment. This involves an effective use of information, or of reasoning and memory abilities. Cultural preferences for a specific mode of information processing may exist and should be recognized in comparing SES or ethnic groups. (92 refs.) - *A. C. Schenker.*

Centre for the Study of Mental Retardation
University of Alberta
Edmonton, Canada

3494 **SPITZ, HERMAN H.** Consolidating facts into the schematized learning and memory system of educable retardates. In: Ellis, Norman R., ed., *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 4, pp. 149-168.

The manner in which MR perform at each of the stages in the schematized learning and memory system is discussed. The idealized memory system, consisting of input, storage, and retrieval, is described: the organism attends to the stimulus which enters the central nervous system, perseverates for a short time in the sensory register, and is stored temporarily (short-term memory) and perhaps more permanently (long-term memory). Once stored in long-term memory, the stimulus can be retrieved. Studies have shown that MR do not scan material as efficiently as equal CA normals. There appears to be no MR deficit in perseveration of a stimulus; in fact, a more lasting perseveration occurs which may interfere with rapid input of stimuli. In relation to immediate memory, it was found that the digit-span channel capacity was 3-4 in EMR Ss compared with 5-7 in normals. The storage capacity of EMR Ss does not seem badly impaired, once the material has gotten into the system. The unaided free recall of MR, however, is relatively poor. The major difference between EMRs and equal CA normals is thus the inefficient organization of the former's input material; if material is stored in organized form, external and/or subjective cueing is more likely to result in successful retrieval. (40 refs.) - *A. C. Schenker.*

E. R. Johnstone Training and Research Center
Bordentown, New Jersey

DEVELOPMENTAL ASPECTS – Social and emotional

3495 PERRY, JOHN H.; & FREEDMAN, DAVID A. Massive neonatal environmental deprivation: a clinical and neuroanatomical study. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 14, pp. 244-268.

A case of extreme deprivation is presented in an infant who died at the age of 23 months; the results of postmortem examination are given. The electron microscopic examination suggests that in the human, environmental deprivation does not result in decreased length and branching of dendrites in premotor, motor, somesthetic sensory, associative, hippocampal, or visual cortices. Total body length was significantly reduced, and body weight, heart, liver, lung, and kidney weights were less than one-half that of the controls. From these data it seems that factors which induce postnatal increase in the length of dendrites are of a different order from those which cause the increase in cell number that mainly supports growth of visceral organs and the body as a whole. It was not possible to demonstrate tissue changes which could be associated with the profound emotional and behavioral retardation shown by the subject. Neither the dendritic pattern nor the thickness and lamination of the cortex could be distinguished from the brains of controls. (25 refs.) - *A. C. Schenker.*

Baylor College of Medicine
Houston, Texas

3496 DEMYER, MARIAN K.; BRYSON, CAROLYN Q.; & CHURCHILL, DON W. The earliest indicators of pathological development: comparison of symptoms during infancy and early childhood in normal, subnormal, schizophrenic and autistic children. In: Nurnberger, John I., ed., *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 17, pp. 298-332.

Parental interviews were employed to compare behaviors of normal (NR), emotionally immature brain-damaged (EI), schizophrenic (SCH), and autistic children during infancy and early childhood. The more obviously brain-damaged autistic children did not differ from the less obviously brain-damaged children in that category in either time period, symptom frequency, or measured verbal and performance intelligence. The 4 groups lay on a continuum of symptom severity with the NR having the fewest symptoms, EI subnormals next fewest, SCH next to most, and AU most symptoms. The chief qualitative differences of the 4 groups were in interpersonal relatedness and communicative aspects of speech, the NR being warmly relating and the AU the most withdrawn. The 2 psychotic groups were more likely to be disturbed by environmental change and more restricted in interests than the 2 nonpsychotic groups. The EI, SCH, and AU groups resembled each other in repetitive body uses, slow and awkward motor development, and lower intelligence. No infantile symptoms were found to predict a specific childhood abnormality, but several could predict the development of severe childhood pathology: reduced responsiveness to sound, staring at objects, reduced hand use, reduced alertness, restricted interest range, and imitation failure. (29 refs.) - *A. C. Schenker.*

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Indianapolis, Indiana

3497 BAUMEISTER, ALFRED A.; & FOREHAND, REX. Stereotyped acts. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 2, pp. 556-96.

A review of the etiology of stereotyped behavior is presented, and the variables affecting such behavior are discussed. Stereotypy is defined as repetitious, topographically invariant motor behaviors or action sequences in which reinforcement is not specified or is noncontingent and whose performance is regarded as pathological.

Some of the theories to account for stereotypy have received support from research findings: the arousal theory holds that stereotyped behavior will increase as drive and/or tension increases; the self-stimulation theory holds that a certain level of stimulation is necessary for the organism, and stereotypy is one way to provide or reduce such stimulation. It is submitted that stereotyped movements are operant, essentially normal behaviors that have, through an extensive conditioning process, become abnormally functional to a variety of cues. With operant techniques, it has been demonstrated that stereotyped movements can be established, maintained at different rates, and almost totally eliminated in an experimental context in individuals with chronic histories of behavior. (88 refs.) - *A. C. Schenker.*

University of Alabama
University, Alabama

3498 **STONEMAN, ZOLINDA; & *KEILMAN, PEGGY A.** Competition and social stimulation effects on simple motor performance of EMR children. *American Journal of Mental Deficiency*, 78(1):98-100, 1973.

The effects of social stimulation and competition were studied in 40 EMR children by using the comparison of performance on the Dots and Maze tasks as a function of the presence or absence of competition, social stimulation, and sex. The facilitative effects of competition and social stimulation were demonstrated in the EMR children, but were highly-task dependent. In the Maze task, the children with competition present performed significantly better than those without competition ($p<.01$); there was also a significant Social stimulation X Sex interaction ($p<.01$). Females performed significantly higher than males only under conditions of social stimulation absent ($p<.05$), and males performed better than females in the presence of social stimulation ($p<.05$). In the Dots task, those children with social stimulation performed significantly better than those without ($p<.05$). The children seemed to prefer to work competitively. (9 refs.) - *A. C. Schenker.*

Louisiana State University
New Orleans, Louisiana 70122

3499 Disabled children have dual identity problems. *Journal of the American Medical Association*, 219(13):1700-1702, 1972. (Editorial).

Handicapped children may have difficulty in self-image because they are considered normal in some ways and deviant in others. A study of 41 handicapped children (21 with IQ below 80) and their parents revealed that the parents were unable to consider the future realistically. Admission to school and early school progress were welcomed by parents as signs of normalcy, but disappointment followed when the children could not meet the parents' expectations. Sixteen children suffered depression during the early school years. The presence of older handicapped children showed them that their disabilities would not be outgrown, and their exclusion from normal peer group activities heightened their sense of isolation. Within 3 years of starting school, 12 of 17 non-MR children could talk realistically about their handicap, while 10 of 15 MR children did not grasp the reality of their handicap. Children whose parents encouraged their participation in normal activities were hopeful of a full range of activity, while children whose parents sheltered them tended to hope for limited function in life. - *V. J. Goldberg.*

3500 The autistic syndrome. *Medical Journal of Australia*, 2(5):229-230, 1972. (Editorial)

A party of psychologists, psychiatrists, pediatricians, and researchers have recently defined infantile autism as the failure to develop or sustain normal relationships with human beings, associated with an exceptional degree of self-involvement. The diagnosis of autism is difficult because the chief observer of early infant behavior is the mother, who is biased because she is one-half of the mother-child bond. Autistic children may appear to be MR, but their IQ is difficult to measure. Children with MR due to other causes often develop autism secondarily. Early reports considered the mother's personality as a factor in autism, citing the high proportion of intelligent but aloof women who were the mothers of autistic children. But women with these characteristics often have normal children, and many mothers of autistic children do not exhibit these personality traits. Early diagnosis of the condition is needed before irreversible loss to the sensory and emotional development of the child occurs. Autism should be considered in any case presenting in the first 18 months of life as MR, deaf, exhibiting a behavior problem, or psychologically "odd." (1 ref.) - *V. J. Goldberg.*

3501 **LEIDERMAN, P. HERBERT; LEIFER, AIMEE D.; SEASHORE, MARJORIE J.; BARNETT, CLIFFORD R.; & GROBSTEIN, ROSE.** Mother-infant interaction: effects of early deprivation, prior experience and sex of infant. In: Nurnberger, John I., ed., *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 8, pp. 154-175.

Mother-infant interaction is discussed in terms of separation, the influence of previous caretaking experience, and the sex of the infant. Striking differences are pointed out in the behavior of mothers of full-term infants and those of premature infants and in the development of these infants. Families of prematures may be particularly prone to the establishment of pathological patterns of behavior. The major influence of separation within the premature group seems to be on maternal self-confidence, which is lower in the separated group; separation in the immediate postpartum period also has a deleterious influence on function of the maternal role following assumption of caretaking. Primiparas interacted favorably with their infants more than did multiparas. Data show differential attentiveness and linguistic stimulation by mothers of firstborns; mothers with an only child provide more social stimulation than do mothers with many children. Mothers initiated more affectionate contact with their sons than daughters. It has not been demonstrated that separation produces a long-lasting effect on attitude and behavior of mothers, but maternal attitude has been shown to bear some relationship to the infant's mental development at 3 months of age. (19 refs.) - *A. C. Schenker.*

Stanford University School
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Stanford, California

3502 **LEZINE, IRENE.** The transition from sensorimotor to earliest symbolic function in early development. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 12, pp. 221-232.

Observations on the development of children's play which suggest a method for studying the acquisition of language are presented. An analysis of the emergence of symbolic play reveals several stages: from 9-12 months the child manipulates all objects he can reach; the pleasure of motor activity seems to be predominant. Between 12 and 17 months, the activities are partly adapted to the conventional use of objects. By 18 months, the actions have become more precise and differentiated and organized. Thereafter, qualitatively distinct levels of activity emerge; the child plays make believe games with a dominant interest in animated toys; the play partner becomes more active (dressing and feeding a doll); and at between 24 and 30 months the child begins to introduce absent objects into his play. The development of the semiotic function depends on the acquisition of knowledge about the properties of objects and on the coordination of action patterns. These 2 acquisitions are necessary before there can be any mental representation or substitution of signifiers for absent objects. (16 refs.) - *A. C. Schenker.*

Centre de Recherches Biologiques
Neonatales
Paris, France

DEVELOPMENTAL ASPECTS – Psychodiagnostics

3503 **WINTER, JOHN J.** Proposed analyses of floor and ceiling effects. *American Journal of Mental Deficiency*, 77(3):296-300, 1972.

Two methods of analyzing binary data, using variance ratio and arcsin transformation, are proposed for detecting floor and ceiling effects where these artifacts are suspected of influencing the interpretation of data on task performance. In the research field, these effects are most commonly apparent when MR persons are compared with intellectually average persons of the same CA. (8 refs.) - *N. Mize.*

E.R. Johnstone Training and
Research Center
Bordentown, New Jersey 08505

3504 **ADAMS, JERRY.** Adaptive behavior and measured intelligence in the classification of mental retardation. *American Journal of Mental Deficiency*, 78(1):77-81, 1973.

The records of 100 MR children between the ages of 5 and 16 years were studied to determine the role played by adaptive behavior measured as the social quotient and its comparison with IQ as measured on a 6-point scale. The correlation between SQ and IQ was .79, and the correlation between the categories of MR based on IQ and SQ was .71; the correlation between the 2 variables was significant ($p<.05$). Thus, these variables are not independent, but they measure different aspects of behavior. The categories based upon the physician's classification (without knowledge of the psychological evaluation) (N = 49) were also correlated with IQ and SQ; the former correlation was .65 and the latter .61. With knowledge of psychological evaluation, the physician's assessment of IQ correlated with test IQ at .94, and SQ with the test SQ at .65. The psychologists' evaluations correlated with IQ tests at .94 and with SQ tests at .71. These findings emphasize the need for the identification of more factors involved in MR and the undesirability of relying on the IQ alone for treatment and training of the MR. (18 refs.) - *A. C. Schenker.*

Illinois State Pediatric Institute
Chicago, Illinois 60608

3505 **ADAMS, JERRY; MCINTOSH, ERANELL I.; & WEADE, BARBARA L.** Ethnic background, measured intelligence, and adaptive behavior scores in mentally retarded children. *American Journal of Mental Deficiency*, 78(1):1-6, 1973.

Since the Vineland Social Maturity Scale (VSMS), an instrument for assessing adaptive behavior, reported no difference in social quotient (SQ) as a function of race, this scale was used in comparing the performance of Negro and Caucasian MR children; these results were compared to those of IQ and SQ levels. The records of 109 MR persons between the ages of 4 and 17 years were studied; 4 groups consisted of 26 Negro males, 24 Negro females, 30 Caucasian males, and 29 Caucasian females. The results indicated poorer performance on IQ tests for Negro than for Caucasian Ss, but were comparable on a simple measure of adaptive behavior. The discrepancy between measured intelligence and adaptive behavior scores was significantly greater for Negro than for Caucasian Ss ($p<.01$). The groups did not differ on deviation social quotient. The evaluation of Negro children by using only the IQ results in classifying more Negro children as profoundly impaired compared to Caucasian children. (16 refs.) - *A. C. Schenker.*

Illinois State Pediatric Institute
Chicago, Illinois 60608

3506 **DEICH, RUTH F.** Shifts in conceptual thinking by organically and familial retarded adolescents and adults. *American Journal of Mental Deficiency*, 78(1):59-62, 1973.

Using McMurray's modified technique requiring concept shifting without establishing prior preference, the conceptual thinking of MR persons was studied in 2 groups of inst Ss: organically MR and cultural-familial MR patients. Each group comprised 18 Ss with a CA of 15-49 years. They were each presented with a card sort task and then given the Block Design subtest of the Wechsler Adult Intelligence Scale (WAIS). The sorting was to be done according to successively different criteria, given in the following order: color, form, number, and a repetition of color. The examiner told one-half of each group when they were wrong only; the other half were told when they were right as well as when they were wrong. Block Design scores did not differentiate the groups; there was a mean difference of 10 IQ points in each group for high vs low scores on this task. The experiment confirmed that the organically MR persons had greater difficulty in shifting from one concept to another than did the cultural-familial MR. The difficulty was particularly evident on color sorts. The organically MR were detrimentally affected when given only negative feedback. The results are not necessarily valid for other types of organic populations. (20 refs.) - *A. C. Schenker.*

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Pomona, California 91768

3507 **SABATINO, DAVID A.; YSSELDYKE, JAMES E.; & WOOLSTON, JOAN.** Diagnostic-prescriptive perceptual training with mentally retarded children. *American*

Journal of Mental Deficiency, 78(1):7-14, 1973.

A study was conducted to discover whether MR children would learn more rapidly when unisensory teaching materials were matched prescriptively to perceptual strengths. Two separate phases were employed, an auditory and a visual. The Ss were 106 EMR children. The perceptual test results revealed that the children could be differentiated into groups demonstrating contrasted patterns of high and low performance on the visual and auditory measures used. Of the 106 children, 36 pairs were selected who represented either auditory or visual strengths. Members of each group were randomly assigned to 3 treatment groups, each containing 24 Ss, 12 audiles and 12 visiles. The unisensory curricula were designed to begin with gross discrimination of sights or sounds and proceed to include finer differentiation of letter and word shapes and speech sounds in varying noise backgrounds. All groups gained on the auditory and visual posttest perceptual measures, but not on reading measures. The treatment did not yield significant interactions between the measured aptitudes and the two types of perceptual intervention. (24 refs.) - *A. C. Schenker.*

Pennsylvania State University
University Park, Pennsylvania 16802

3508 CLARKE, A.D.B. What use is the I.Q. in mental deficiency practice? In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 8, pp. 70-77.

The use of the intelligence quotient (I.Q.) test and its constancy of measurement are clarified. Errors of measurement are likely to occur due to alterations in mood, to misunderstanding of instructions, to the cultural bias of the questions, or to errors in scoring. Increments in I.Q. tend to occur as a result of practice or coaching. Incorrect testing is quite common, the main errors being due to too short a test, a previous result being quoted as the present status, the wrong test being given, the testing being done during a traumatic episode, or the scoring being misapplied. The most important single fact in this field is that the test-retest correlations decrease as the interval between the tests lengthens. In general, the I.Q., if properly applied and interpreted, gives a most valuable indication of a person's present status on the functions tested and relates him to others of similar age. Careful perusal of the test records indicates the individual's assets and deficits; these should be the starting point for planning training, education, and therapy. (16 refs.) - *A. C. Schenker.*

University of Hull
United Kingdom

3509 ELKIND, DAVID. Infant intelligence. *American Journal of Diseases of Children*, 126(2):143-144, 1973.

Reference is made to an article by Michael Lewis and Harry McGurk on the reliability and validity of infant intelligence tests. According to these authors and all previous research in this area, infant tests are poor predictors of later intellectual ability; on the basis of research studies, the predictive value of infant intelligence increases directly as the age of the child increases and inversely with the amount of time between successive testings. This is due to the fact that infant tests measure primarily sensorimotor functions, while tests at later age levels are based upon verbal and reasoning skills. However, tests can often reveal children who are either exceedingly advanced or exceedingly slow. Data on infant intelligence tests require that we look at the relation of genetics to intelligence from a dynamic rather than static viewpoint. If intelligence is thought of as analogous to an evolving organ system, then the question as to the fixity of the IQ scores across the life cycle can also be answered in a dynamic way. Just as a person born with a good heart is likely to remain strong throughout life (barring an accident), so children who are bright in infancy are likely to stay bright unless they engage in activities destructive to mental prowess. (1 ref.) - *A. C. Schenker.*

University of Rochester
Rochester, New York 14627

3510 BRYANT, GILLIAN M.; DAVIES, KATHLEEN J.; RICHARDS, F. MARIE; & VOORHEES, SUSAN. A preliminary study of the use of the Denver Developmental Screening Test in a Health Department. *Developmental Medicine and Child Neurology*, 15(1):33-40, 1973.

The Denver Developmental Screening Test was

found to be a simple and useful home screening method in preliminary trials involving 96 babies born consecutively at a Cardiff hospital and examined at age 12-13 mos. Where sufficient training in use of the test was provided, the independent findings of public health nurses and physicians proved equally reliable and reproducible. While some need for adjusting the scales to conform to local differences seems indicated, the Denver Test would appear to be an acceptable screening tool. (6 refs.) - *N. Mize.*

Public Health Department
Cardiff CF1 3LA, Wales

3511 **DANGEL, HARRY L.** Biasing effect of pretest referral information on WISC scores of mentally retarded children. *American Journal of Mental Deficiency*, 77(3):354-359, 1972.

To assess the possible biasing influence of pretest referral information on the WISC test scores reported for children in special classes for the MR, 3 graduate student examiners were given differential types of referral information—positive, neutral, or negative—for 54 MR special education students. In spite of the planned conflict under two conditions, the results of this double-blind study indicate that the WISC scores obtained were not biased by examiner expectancy. This is probably a combined result of the precision built into WISC testing procedures and the trained objectivity of the examiners. (15 refs.) - *N. Mize.*

Georgia State University
Atlanta, Georgia 30303

TREATMENT AND TRAINING ASPECTS – Educational

3512 GOTTLIEB, JAY; & BUDOFF, MILTON. Social acceptability of retarded children in nongraded schools differing in architecture. *American Journal of Mental Deficiency*, 78(1):15-19, 1973.

Social acceptability of integrated and segregated MR children in attendance in a no-interior-wall, open-concept nongraded school was compared with that of EMR children located in a traditional egg-crate school building. Forty boys and 40 girls, distributed equally as to grades, were selected randomly from the open-concept school's non-EMR enrollment to rate sociometrically 8 partially integrated and 4 segregated EMR children. The selection for rating 4 partially integrated and 8 segregated EMR children was submitted to 28 boys and 28 girls from the walled school's population. The results of the rating revealed that, although EMR children in an open-concept school were known more often, they were not liked more often. The incidence of outright rejection of EMR children in the two schools was, however, low. Consideration must be given to the environment into which the EMR child is integrated and the attitude of the teacher. The parameters of social acceptance in the classroom require further research. (14 refs.) - *A. C. Schenker.*

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Cambridge, Massachusetts 02139

3513 ROSS, DOROTHEA M.; & *ROSS, SHEILA A. Cognitive training for the EMR child: situational problem solving and planning. *American Journal of Mental Deficiency*, 78(1):20-26, 1973.

The efficacy of training for young EMR children in planning and situational problem-solving was investigated in 2 studies. Study 1 concerned problem-solving by 13 boys and 17 girls from 4 primary classes for EMR children. A problem-solving test was administered to all Ss; the experimental group took part in a training program, while the control group took part in an unrelated project which was similar in terms of time, type of reward, and adult attention. Following the completion of the training program, the problem-solving test was again administered to both groups. The results indicated that EMR children can benefit from formal training in problem-solving. In study 2, 9 boys and 19 girls were tested, half the group was trained, and both groups were retested upon completion of the training period for the experimental group. Again, the trained group showed a significant improvement. Both studies showed significantly higher scores for the trained children ($p<.001$). The results provide strong support for the efficacy of specific cognitive training for the EMR child. (23 refs.) - *A. C. Schenker.*

*Palo Alto Medical Research Foundation
Palo Alto, California 94301

3514 MITTLER, P. The teaching of language. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*, Baltimore, Williams and Wilkins, 1973, pp. 199-212.

The development of language in children involves the appropriate vocalization of sounds which is preceded by the understanding of spoken language. The results of studies with 100 parents of SMR preschool children who charted the development of language comprehension and expression of their children may be used to obtain data for the design of specific remedial programs. Normal children begin to speak single words at about age 12 months, but their vocabulary does not increase rapidly until after they have learned to walk.

Similar correlations of language and physical development have been observed with Down's syndrome children. Comprehension of spoken language may be enhanced in normal and MR children by verbal cues, such as context, and by a wide range of nonverbal cues, which include gesture, facial expression, and tone of voice. One program for increasing language comprehension might be to provide the child with numerous nonverbal cues which are gradually removed, leaving only verbal cues. Another possibility is to teach the MR child a nonverbal signal for noncomprehension. Attention theory techniques may also be used to teach MR children to listen to sounds. Two-word utterances of young children are frequently of the pivot-open structure. A study with Down's children showed that MR with single-word vocabularies can be taught to use this construction. Teachers of language should consider using a more structured approach which takes into account psycholinguistic and cognitive models of language development. (28 refs.) - *V. J. Goldberg.*

3515 **CAVE, C.W.E.** The training of teachers of mentally handicapped children. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research.* Baltimore, Williams and Wilkins, 1973, p. 87-94.

The responsibility for the education of severely MR children in England has recently been transferred from the health authorities to the local educational authorities. The training of teachers of the MR is now done within the framework of ordinary teacher-training, with special emphasis on the learning problems of the handicapped. Conversion programs have been arranged for experienced teachers who possess Training Council Diplomas. The most desirable training course would be a normal teacher training experience followed by a period of teaching normal children, and then a 1-year program in specialized teaching, but the output of teachers from a program of this sort would not meet the demand. An emphasis on the teaching of learning skills rather than subject matter is needed because of the prevalence of mixed-ability grouping in the schools. In-service training is also offered, especially for young teachers. Teachers also need to be made more responsive to change and the implications of research. Adequate communication between researchers and teachers is needed before teachers can participate effectively. - *V. J. Goldberg.*

3516 **CURRIE, JEANNE M.** Some "new" teachers' views. In: Clarke, A.B.D.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research.* Baltimore, Williams and Wilkins, 1973, pp. 95-100.

Teachers of SMR were asked to list research studies which they found most valuable and three areas in which more research was needed. Twenty-three of 32 replied. Studies of development, especially speech and language, were found to be most useful, but the teachers felt that more research into MR or specific educational topics was needed. The replies may be biased because the teachers in 2 schools had been involved in a recent research project in language development. - *V. J. Goldberg.*

3517 **CUNNINGHAM, C. C.** The application of educational technology to mental retardation. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research.* Baltimore, Williams and Wilkins, 1973, pp. 113-124.

Educational technology is one means of transposing behavioral science and research findings into evaluated teaching methods and materials. The aims of educating the SMR need to be established, and the purpose of teaching a particular task should be made clear to the teacher. The ultimate goals of education determine the curriculum. The curriculum should reflect the emerging skills of the child and not be dictated by static theories of child development. The use of teaching machines, visual aids, and other devices often results in teaching programs tailored to the machine rather than to the child. Educational technology is the systematic approach to good teaching (which is the optimal achievement of objectives for a specific learner). Lacking a systematic approach, good teaching has been achieved by intuition. Programmed learning, which has been used with the SMR, also requires its integration into the needs of the learner. Teachers who are taught the concept of educational technology are probably more likely to evaluate techniques and be experimental. (12 refs.) *V. J. Goldberg.*

3518 **SERPELL, R.** Applications of attention theory to teaching in schools for the severely subnormal. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and*

Behavioural Research. Baltimore, Williams and Wilkins, 1973, pp. 167-180.

"Attention theory" is the idea that some kind of active perceptual selection mediates between sensory stimulation and discriminative responding in learning tasks. Attention theory is based on studies which use a narrow range of procedures including a fixed number of available response categories to a fixed number of stimulus variables, frequent sampling of behavior, and reinforcement of the behavior according to a predetermined schedule. The laboratory setting limits the format of these studies, so that responses such as cover-lifting or lever-pressing (which are irrelevant in a classroom context) are used with MR Ss. Vision is the primary mode of stimulation, although other modes may be used. There has been little concern for the effects of various kinds of reinforcement. A further problem in attention theory research is that the Ss may be upset by the unfamiliar surroundings and by the examiner. Attention theory can contribute to the education of the SMR by manipulating the environment so that the salience of nonpreferred stimulus dimension is increased. Experiments are needed in which the susceptibility to stimulus change to familiar compounds of several dimensions and to haptic cues in establishing preliminary stimulus control is investigated. (26 refs.) - *V. J. Goldberg.*

3519 **JUNGJOHANN, EUGEN; & KAUFMAN, MELVIN E., IV.** The education of the multiply handicapped: an evaluation of a milieu therapy programme for severely retarded children in an institution. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 10, pp. 83-87.

Results of a pilot and clinical program which attempted to modify various aspects of the inst approach to the care of SMR are presented. The Ss were 16 MR children and 16 controls (with equal iimpairment) from another inst; the ages were 5-9 years. The therapeutic milieu consisted of a play-living room in which an aide was trained to function as a mother, and the children in groups of 3-5 were given the opportunity to function as siblings in a family. Regular group counseling for aides and nurses was held to provide the children with: mothering verbal input with continuous vocal interaction, planned sibling interaction, encouragement in area of locomotor and manipulatory experience, patterns of care, and opportunities to achieve individuality. The control group was given the care generally given in a traditional inst. The clearest finding in the study was the greater manipulation of the environment by the therapeutic milieu group than the control group. The trend of the results suggested that some of the negative effects in an inst of this type may be modified and reduced in a therapeutic milieu. (11 refs.) - *A. C. Schenker.*

Georgia State University
Atlanta, Georgia

3520 **COTTON, ESTER; & PARNWELL, MARGARET.** Conductive education with special reference to severe athetoids in a non-residential centre. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams and Wilkins, 1973, Chapter 11, pp. 88-95.

The education of severely handicapped and speechless athetoid children is described, as originated by Andras Peto. Professor Peto strove for a unity of approach to the treatment, education, and management of the cerebral palsied child and achieved this by creating a new profession: that of "Conductor"; by adopting a method of treatment called "Rhythmical Intention"; and by arranging for children to work in groups while adhering to a rigid timetable and a long-term program in surroundings free from all distractions. The conductor controlling the group acts as nurse, teacher, physiotherapist, occupational therapist, and speech therapist to the children in her particular group. Rhythmical intention is the term used to describe the method by which the child learns normal movement patterns, functional skills, how to speak, and the purpose of speech. By these methods it is possible to have children of 4 years maintain their concentration and participation in a demanding class for over half an hour. The child's emotional and social behavior is successfully controlled in this setting. - *A. C. Schenker.*

3521 **WOODWARD, MARY.** The application of Piaget's theory to the training of the subnormal. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Wil-

liams & Wilkins, 1973, Chapter 14, pp.113-121.

Piaget's concept of education is applied to the MR in terms of the ability to grasp concepts of numbers and space, and manipulative material is suggested for junior training centers. Studies of MR adults and children have indicated that they develop through Piaget's sequence in the same order as normal children do; the difference is in the rate of development and in the end reached. Intuitive thinking for number concepts, which, in the normal child, is found at about age 7 years, was not found in SMR children below the age of 10.9 years. The most suitable material for the older children, when they can count accurately, is that which is most likely to facilitate the development of concepts of number and space; material which requires the child to match pair sets of objects in a one-to-one correspondence or to place in order elements that are graded in length are examples which are useful in this context. A study of 105 children in relation to these concepts suggested that ability to use size and form when coordinating perception of these with motor activities develops before use can be made of color and pictures in a similar manner. The major point made is that subnormal children should not be pressed to attempt to use material that is too far advanced for their stage of development. (14 refs.) - *A. C. Schenker.*

University College of Swansea
Wales

3522 **HASKELL, SIMON H.** Programmed instruction for physically handicapped children: some educational and sociological implications. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 12, pp. 96-104.

Some features in the field of special education for physically handicapped children are delineated, and comments by teachers in this field are reported. As a result of the rapid spread of new knowledge and the introduction of new techniques, a variety of strains and stresses come to bear on professionals. A fact which is often unrecognized is that the use of teaching machines cuts across the teacher's incentive, so that the teachers resent their introduction. Unless teachers are convinced that they have something to offer to the child, they will remain insecure when communicating with other specialist colleagues. Comments of teachers of cerebral palsied children regarding programmed teaching machines include: the limiting of the child's instinctive tendencies, lack of consideration for the individual child, no provision for group work, and too much analytical dissertation. The teacher who attempts to evaluate the contribution of the machine feels restricted in using her own methods to communicate the equivalent information; she feels that she is on trial. Further research is needed in designing programs and in making machines trouble-free and improved feeding mechanisms to sustain the interest of physically handicapped children. (3 refs.) - *A. C. Schenker.*

University of London
Institute of Education
London, United Kingdom

3523 **NEVILLE, DONALD; & *VANDEVER, THOMAS R.** Decoding as a result of synthetic and analytic presentation for retarded and nonretarded children. *American Journal of Mental Deficiency*, 77(5):533-537, 1973.

MR and nonMR children were tested to determine whether synthetic or analytic reading instruction facilitates learning and transfer. Sixty-nine primary school children were classified as MR by school personnel, and 67 Ss were classified as nonMR by means of a shortened version of the Wechsler Intelligence Scale for Children; 30 pairs of MR-nonMR Ss were selected for study. The pairs were rank ordered on MA and randomly assigned to analytic or synthetic treatment. Two lists of high frequency words were coded and taught synthetically and analytically to the Ss. Results indicated that both sets of children learned more words when these were presented synthetically, and this method also produced more transfer for both groups. Both groups of children learned about the same number of words, indicating their similarity with respect to their ability to learn words and in their ability to transfer. Although more words were learned by the synthetic group, MA was more closely related to the number of words recognized in the analytic condition. (11 refs.) - *A. C. Schenker.*

*Peabody College
Nashville, Tennessee 37203

3524 **BAER, DONALD M.; & *GUESS, DOUG.** Teaching productive noun suffixes to severely retarded children. *American Journal of Mental Deficiency*, 77(5):498-505, 1973.

Differential reinforcement and imitation procedures were used to develop the generative production of nouns from newly taught verbs, by the use of morphemes, in 4 SMR children. Pictures showing persons engaged in various actions and activities were used as training stimuli. Sweets, toys, and approval were used as reinforcers in the training sessions. The noun endings *er* and *ist* were used as suffixes to the verbs describing the actions in the pictures. Performance of a subject was considered as generative when each new verb was converted into its correct noun suffix without any error. The results of testing, following the training sessions, substantiated previous studies in the development of morphological grammar in MR children, in which training a few instances of a class of linguistic behavior generated other members of the class not trained directly. (11 refs.) - *A. C. Schenker.*

*Kansas Neurological Institute
Topeka, Kansas 66604

3525 **LONG, HUEY B.** The education of the mentally retarded adult: a selective review of recent literature. Washington, D.C., Adult Education Association of the U.S.A., 1973, 58 p. Microfilm 65 cents, Hardcover $3.29.

The present monograph constitutes a selective review of recent literature dealing with the education of the MR adult. Since the Vocational Rehabilitation Administration appears to be the dominant governmental agency in the field, much of the literature included reflects a vocational rehabilitation emphasis. The experimental research dimension is limited, the bulk of the literature being philosophical and descriptive. (98 refs.) - *B. J. Grylack.*

CONTENTS: Foreword (Grabowski); Preface; Introduction; Rationale and philosophies; Instructional techniques and teachers; Programs and curricula; Conclusions; References.

3526 Segregation of poor and minority children into classes for the mentally retarded by the use of IQ tests. *Michigan Law Review*, 71(6):1212-1250, 1973.

A review of the legal aspects of the segregation of MR children in the schools is presented. It is contended that the sole, or predominant, criterion used by officials in labeling students MR and in relegating them to EMR classes is the intelligence test. Furthermore, these tests may have built-in cultural and social biases that could result in discriminatory and unfair placement of minority group children in such classes. It is pointed out that the more disadvantaged the child, the lower his test score will be. To the extent that intelligence tests are untrustworthy indicators of MR in minority children, their use with respect to these children may violate due process. In this context, the stigma attached to MR is equal to or exceeds that of a criminal conviction, and irremedial psychological damage may be done to a child by false labeling in EMR cases. A number of suits and rulings are cited in this context. Some helpful solutions which can minimize the unreliability of IQ tests in minority populations are suggested which concern: the language in which the tests are given, the consideration of the child's developmental history, cultural background and scholastic achievement, consultation with parents, and an annual review of the child's capability. (216 refs.) - *A. C. Schenker.*

TREATMENT AND TRAINING ASPECTS – Psycho-social

3527 **CLARK, D. F.** Visual feedback in the social learning of the subnormal. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 16, pp. 131-140.

A technique is described for assessing the effects

of knowledge of results shown visually on the social discrimination among MR adolescent boys. The Ss comprised 50-70 boys, ranging in age from 13.0-21.3 years, with an I.Q. between 30-90. The aim of the study was to improve the boys' judgment of their peers; the technique used was to isolate appropriate cues by showing all the boys' weekly ratings of their own behavior and that of all the other boys in terms that would be meaningful to them. The rate of improvement in social discrimination was surprisingly rapid; one explanation for this may have been the involvement of the nurses and supervisors in a more attentive relationship with the boys. Another explanation may be due to the added encouragement and incentives offered. While neither the boys nor the staff found the methods cumbersome to apply, the danger of overdependence on them is to be considered. (17 refs.) - *A. C. Schenker.*

Regional Services for the
Mentally Handicapped
Ladysbridge Hospital
Banff, Scotland

3528 **CORTAZZI, DIANA.** The bottom of the barrel. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 17, pp. 141-149.

Twelve adult SMR (IQ below 35) women patients were allowed out of their closed ward for just one hour a day in an attempt at resocialization. The sessions began with music allied with movement; at the end of 3 months, when there was some degree of control in the music and movement and the women had learned to tolerate contact to some extent, painting was introduced. Four months after starting the project, percussion was added to the activities. At the end of 4 years, out of the 12, 4 were considered to have failed. Four of the 12, 3 with IQ's probably below 25, are successfully integrated in a busy, dynamic, progressive occupational therapy unit as full-time, normally participating members of the hospital; 2 of the 4 are now living in an open ward. The remaining 4 are still in need of special attention, but at the end of the experiment they were able to accept relationships with some equanimity and were beginning to learn from each other; they were able to concentrate on at least 12 different types of simple activity for periods which had increased from 30 seconds to 10 minutes. - *A. C. Schenker.*

St. Lawrence's Hospital
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United Kingdom

TREATMENT AND TRAINING ASPECTS – Occupational

3529 **SPEIJER, N.** Function analysis and vocational guidance for the mentally handicapped. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 21, pp. 171-175.

A function analysis is proposed to help find appropriate work in the sheltered workshop which will assist in making the MR's potential effective by using his capabilities to the fullest extent. Three factors have to be considered: the job, the trainee, and the relationship between the two. The components selected for the particular job in this case are: the degree of intelligence required, the physical force required for the work, coordination, rate of fatigue, cooperation required with fellow workers, and the degree of accuracy required. This may be assessed on a quantitative basis. A personality-type analysis is applied to the trainee. From these analyses, a relationship between job and trainee can be deduced. The points to be considered in the sheltered workshop are thus: placing the trainee in the job for which his capacities are best suited; watching him carefully to see if he is capable of doing more complicated work; and developing his capacities by letting him work in such a way as to encourage the development of these capacities. (1 ref.) - *A. C. Schenker.*

State University of Leydon
Holland

3530 **CLARIDGE, G. S.** The senior occupation centre and the practical application of research to the training of the severely subnormal. In: Gunzburg, H. C., ed.

Advances in the Care of the Mentally Handicapped. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 19, pp. 155-160.

Experimental investigations on the effects of incentives on the performance of adult imbeciles resulted in the finding that different types of incentive produced better performance than no incentive; in the present study some of the patients participating in the original investigations were reexamined, by using the same techniques and incentives, after an interval of one year. Of the 3 groups tested, that receiving no incentive at all showed the poorest average performance throughout the experiment; a slightly better performance was maintained by those who were given targets but whose achievements were greeted with indifference by the experimenter. At all stages of practice, the group whose goal-striving was accompanied by sympathy and encouragement did best. The SMR person is very responsive to social approval of his achievements, and incentives provide a convenient and potent way of improving the imbecile's performance. (11 refs.) - *A. C. Schenker*.

University of Glasgow
Southern General Hospital
Glasgow, Scotland

3531 **GOLD, MARC W.** Research on the vocational rehabilitation of the retarded: the present, the future. In: Ellis, Norman R., ed., *International Review of Research in Mental Retardation*. New York, New York, Academic Press, 1973, Chapter 3, pp. 97-147.

The present status of research on the vocational habilitation of the MR is described, and directions for future efforts are proposed. The present status is considered for the United States and includes: service programs, classified as school or workshop programs; research, defined as activities primarily focused on obtaining information leading to the development of a technology for the field and including prediction and evaluation of intelligence tests, manual dexterity tests, work sample tasks, and other relevant research; training, defined as controlled, systematic manipulations of the environment, administered in such manner that the effects can be measured, including modifying rates of existing behaviors and facilitating the acquisition of new behaviors. Recommendations made for the future include: a change from organizational considerations to the development of programs; the development of procedures which can be implemented economically; information obtained from research made available to all; identification and adaptation of relevant information from other disciplines; training objectives clearly defined; and job enlargement investigated. (171 refs.) - *A. C. Schenker*.

Children's Research Center
University of Illinois at Urbana-Champaign
Champaign, Illinois

3532 **FIESTER, ALAN R.; & GIAMBRA, LEONARD M.** Language indices of vocational success in mentally retarded adults. *American Journal of Mental Deficiency*, 77(3):332-337, 1972.

A study involving TMR adults (IQ 40-70, CA 18-30 years) employed by four sheltered workshops in the Chicago area has demonstrated a significant relationship between psycholinguistic abilities and vocational success, as measured by individual productivity rates. Of the 21 test variables, 9 significantly differentiated the vocational Success Group from the Failure Group ($p = <.05$), with the Success Group demonstrating the higher mean score. Sex was the only demographic variable approaching significance. Overall, language and communication skills would seem to compare favorably with other suggested predictive indices of vocational success. (17 refs.) - *N. Mize*.

Miami University
Oxford, Ohio 45056

3533 **WILLIAMS, PAUL.** Industrial training and remunerative employment of the profoundly retarded. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 20, pp. 161-170.

The social age is very often well in excess of mental age in MR individuals, and intelligence tests are poor indicators of nontest activity in the most severe grades of MR. The case of a 17-year-old PMR boy is presented to illustrate this concept. On the opening of a new Industrial Training Unit,

the boy was admitted against the opinion of the manager of the unit, who thought that the transition would prove beyond the boy's ability. It was discovered that he could be taught to carry out many operations, remember them for long periods, and persist with a task at a slow but steady rate. As a result of the boy's success, several

equally MR but more disturbed children are to be given a trial at work. Lack of intelligence or social maturity alone must not exclude a person from industrial training for simple work that is readily available. (22 refs.) - *A. C. Schenker.*

Castle Priory College
Wallingford, Berkshire
United Kingdom

3534 **DOMINO, GEORGE; & MCGARTY, MAUREEN.** Personal and work adjustment of young retarded women. *American Journal of Mental Deficiency*, 77(3):314-321, 1972.

As hypothesized, a significant relationship between work adjustment and personal adjustment—as indicated by clinical ratings of general adjustment, and by ratings on the Sonoma Check List and the Work Adjustment Rating Form—was found in a sample of 35 young MR females employed at a sheltered workshop. The positive relationship between the 2 was specifically indicated in the association between a satisfactory level of work adjustment and an individual otherwise identified as independent, resourceful, and self-confident. (13 refs.) - *N. Mize.*

Fordham University
Bronx, New York 10458

3535 **MORLEY, K. G.** Industrial training: problems and implications. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*, Baltimore, Williams & Wilkins, 1973, p. 125-130.

MR individuals may be given industrial training if it appears likely that they will benefit from it. Industrial training includes continuous assessment of performance, aptitude, and social and educational competence. In the Croydon area (near London, England), a total of 180 MR are involved in a program which entails three levels of industrial training. The adult training center has 98 MR (74 with IQ below 50) who are unlikely to move on, and industrial training has a minor role. The advanced adult training center has 35 MR (9 severely MR); a major emphasis is placed on industrial training. The sheltered workshop employs 45 MR (16 SMR) and work is the only activity. Since 1965, 31 MR (3 severely MR) have been placed in open employment. As industrial training becomes more prevalent, greater effort will have to be made to find suitable employment for MR workers. At present, about 1,000 MR work in sheltered workshops in Britain. - *V. J. Goldberg.*

3536 **MORGENSTERN, MURRY; & MICHAEL-SMITH, HAROLD.** *Psychology in the Vocational Rehabilitation of the Mentally Retarded.* Springfield, Illinois, Charles C. Thomas, 1973, 90 pp.

This book presents current concepts, techniques, problems, and future trends related to the vocational rehabilitation of the MR, with emphasis upon psychological and social aspects somewhat neglected in previous work. (61 refs.) - *N. Jarvis.*
CONTENTS: A Decade of Societal Change; The Scope of the Problem; Underlying Concepts in Vocational Rehabilitation; Problems in Prognosis; The Team Approach and the Professional Dilemma; The Changing Workshop Concept; Critical Needs in Vocational Rehabilitation; Summary; Observations and Future Directions.

TREATMENT AND TRAINING ASPECTS — Therapy

3537 **PANGALILA-RATULANGI, E. A.** Pilot evaluation of Orap® (pimozide, R 6238) in child psychiatry. *Psychiatria, Neurologia, Neurochirugia*, 76(1):17-27, 1973.

Eight boys and 2 girls (CA range 9 to 14 years), all affected by behavioral disorders and/or learning disturbances with autistic behavioral phenomena but none of whom was MR, participated in a 2-phase evaluation of Orap. The first, open phase was characterized by individual determination of the optimal dosage; the second phase consisted of

a single-blind 5-week study during which Orap was replaced by placebo. At the conclusion of each phase a general assessment of the behavior of the children was made, they each completed a questionnaire, and projective tests and an EEG were administered. During Orap therapy 7 patients showed striking improvement in behavior, and in 4 there was an improvement in the EEG. Aside from 1 patient in whom no optimal dose could be found, the optimal daily dose was 1mg in 1 patient and 2mg in the others. A relapse occurred within 2 placebo-weeks in 3 of the 7 patients who had improved markedly during previous Orap therapy. Of the remaining patients, none had a relapse within 5 placebo-weeks, but 1 relapsed after 8 weeks on placebo. The 9 patients who completed the questionnaire in each phase of the trial revealed a significant increase in neuroticism ($p=0.037$) and a trend towards increased introversion ($p=0.064$) after changing from Orap to placebo. EEG traces deteriorated in all 4 patients who had shown EEG amelioration with Orap. (15 refs.) - *B. J. Grylack.*

Orthopaedagogic Centre "Tulpenburg"
Amstelveen, The Netherlands

3538 ZWANIKKEN, G. J. Penfluridol (R 16341). A long-acting oral neuroleptic, as maintenance therapy for schizophrenic and mentally retarded patients. A placebo-controlled double-blind trial. *Psychiatria, Neurologia, Neurochirugia*, 76(2):83-92, 1973.

Forty-eight female hospitalized patients, 21 schizophrenics (mean CA 55 years) and 27 MR patients (mean CA 40 years), participated in an evaluation of the efficacy of penfluridol as maintenance therapy for patients requiring neuroleptics. In the first, 4-week stage, all neuroleptics were replaced gradually with increasing weekly dosages of penfluridol in the form of 20mg tablets. In the second, 2-month stage, the efficacy of penfluridol as a maintenance neuroleptic was evaluated under open conditions. In the third, 6-month double-blind stage, patients received the number of tablets of penfluridol (group I) or placebo (group II) equivalent to their previously determined optimum dose level. The medication dosage was increased initially if clinical deterioration was noted, but upon continued deterioration the double-blind medication was continued unchanged while haloperidol was added at individually adapted dose levels. A questionnaire rating scale was completed by patients at the onset of the trial, after 1 month, at the end of the open phase and 3 times during the double blind phase. Thirty-seven patients completed the first phase, the average weekly dose of penfluridol being 57.3mg and significant improvement being obtained on 11 of the 36 questionnaire items. All 37 patients completed the double-blind phase, 10 of 17 patients in the placebo group requiring haloperidol as compared with only 7 of the 20 in the penfluridol group. The amelioration noted during the open phase continued or even improved in the penfluridol group during the double-blind phase. (14 refs.) - *B. J. Grylack.*

Psychiatric Hospital "Voorburg"
Vught, The Netherlands

3539 TOISTER, RICHARD P. Some applied and theoretical implications of behavioral technology for mental retardation. In: Allen, Robert M.; Cortazzo, Arnold D.; & Toister, Richard P.; eds. *Theories of Cognitive Development: Implications for the Mentally Retarded.* Coral Gables, Florida, University of Miami Press, 1973, Chapter 6, pp. 149-156.

The programmatic and theoretical implications of behavioral technology for the field of mental or developmental MR are outlined. One of the applied implications is based on the relations between discriminative stimuli, responses, and reinforcers, as outlined by Skinner. The implications of the A-B-C model (antecedent-behavioral-consequent) are that all 3 events must be carefully observed and charted. The 3-part relation underscores the behavior modifier's reliance on diagnostic teaching rather than diagnostic testing. Another implication of the A-B-C paradigm is that the failure of an individual to learn may be the function of an inadequate or inaccurate program rather than an unalterable deficit within the individual. Results of this concept are reflected on the capability of placing increased responsibility for effective intervention into the hands of such paraprofessionals as parents and peers. The theoretical implications of a reinforcement analysis with the MR opens new avenues in the thinking process of MR Ss. A new approach to behavioral training of the MR is the stress laid on motivation. The reason why these Ss do not perform may be due to a lack of approval, rather than a lack of concern for approval. (23 refs.) - *A. C. Schenker.*

3540 **OLIVER, B. E.; SIMON, G. B.; & CLARK, B.** Group discussions with adolescent female patients in a mental subnormality hospital. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 18, pp. 150-154.

The group meeting approach is described with girls of limited but not subnormal intelligence presenting with behavior problems. The majority of these girls have neither thought about nor planned their discharge from the inst. One method of initiating rehabilitation is to start them working outside while living in the hospital. When a girl goes out to work for the first time, success or failure in establishing relationships with workmates depends on her handling of the question of her place of residence and her background. The problem seems to have lessened since more such patients are working. Subjects of discussions at meetings include this problem, as well as those dealing with taxes, savings, and cost of living, sexual and related problems, and attitude to parents. Apart from any direct effects this form of group meeting may have on the patients, it deepens the therapist's insight and understanding of the antisocial and inadequate responses which are characteristic of this group. (1 ref.) - *A. C. Schenker.*

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Subnormality Division
Chelmsley Hospital
Marston Green, Birmingham
England

3541 **HAYNES, RALPH E.; SHERARD, EARL S.; CRAMBLETT, HENRY G.; AZIMI, PARVIN H.; & HILTY, MILO D.** Treatment of herpesvirus encephalitis with iododeoxyuridine. *Journal of Pediatrics*, 83(1):102-105, 1973.

Central nervous system infections caused by Herpesvirus hominis are described in 3 children and response to treatment with 5-iodo-2'-deoxyuridine (IDU) is discussed. All 3 developed severe rapidly progressive encephalitis with the clinical symptoms of a mass lesion in the brain. The patients were given 100mg/kg IDU i.v. over a 4-hr period; the dosage was continued daily for 6 days when the diagnosis was confirmed. Infection of the brain with herpesvirus is characterized by cellular necrosis and cerebral edema; early diagnosis is mandatory if treatment is to succeed. Case 1 had encephalitis for 5 days prior to initiation of IDU therapy and had a fair response; case 3 had severe encephalitis for 8 days prior to treatment and showed no improvement; and case 2, who was sick for only 2 days prior to therapy, recovered completely. The apparent response in 2 of the patients is encouraging. (12 refs.) - *A. C. Schenker.*

The Children's Hospital
Columbus, Ohio 43205

3542 **BUTTERFIELD, EARL C.; WAMBOLD, CLARK; & BELMONT, JOHN M.** On the theory and practice of improving short-term memory. *American Journal of Mental Deficiency*, 77(5):654-669, 1973.

Experiments are reported which were designed to eliminate short-term memory deficiencies. Starting with basic studies to identify effective mnemonic processes used by nonretarded adults, studies pursued yielded a partial understanding of how the memory processes of retarded persons differ from those of the nonretarded; findings showed that retarded persons do not rehearse spontaneously. In addition, these persons do not properly sequence rehearsal and essential nonrehearsal techniques and they neither intercoordinate multiple retrieval strategies nor coordinate these retrieval strategies with strategies of acquisition. The MR Ss' passive memory capacity is not greatly impaired; they can rehearse and recall accurately; yet when they were instructed to rehearse 3 letters and then passively attend to 3 more, they did not select the optimal retrieval strategy for recall. Apparently these Ss lacked spontaneous access to the processes and coordination among them. (15 refs.) - *A. C. Schenker.*

University of Kansas
Lawrence, Kansas 66044

3543 **SPRADLIN, JOSEPH E.; COTTER, VANCE W.; & BAXLEY, NORMAN.** Establishing a conditional discrimination without direct training: a study of transfer with retarded adolescents. *American Journal of Mental Deficiency*, 77(5):556-566, 1973.

Conditional requirements for the study of transfer mechanism in MR adolescents were investigated under 3 experimental conditions. Experiment 1 was designed to establish a conditional discrimination without direct training, using 3 MR Ss. In this experiment, it was found that conditioning a new response to one member of the stimulus class was sufficient to establish that response to the other members of the class; therefore a conditional

discrimination could be developed without direct training. Experiment 2 was designed to determine whether such pretraining is necessary for transfer to occur. The results indicated that conditioning a common choice response to 2 conditional stimuli was sufficient to establish similar controlling properties, so that pretraining was not necessary for transfer to occur. Experiment 3 was designed to determine whether or not response equivalence procedures would be sufficient to establish a new conditional discrimination without direct training; the results were not conclusive. The stimulus response class mechanisms may clarify some of the transfer implicit in such terms as concept, reasoning, and language. (16 refs.) - *A. C. Schenker.*

University of Kansas
Lawrence, Kansas 66044

3544 VAN DEN BERGH, R.; & BEULS, E. Plexectomy in the management of hydrocephalus. *Developmental Medicine and Child Neurology*, 15(1):124, 1973. (Abstract)

Open plexectomy is recommended as the preferred surgical procedure for the treatment of hydrocephalus. The results obtained are reported as being comparable with those of shunt operations, with a stabilization rate of 63.6% and a mortality rate of 2.8%. All cases of nontumoral hydrocephalus have been treated by open extirpation of the left plexus some weeks later. When stabilization is not obtained by these procedures, a Pudenz ventriculocardiac shunt is performed. If a tumor or hygroma is diagnosed, an arteriogram is taken in addition to an EEG, a cerebral scintigraphy, and, if necessary, a fractional pneumoencephalogram or ventriculogram. The postoperative psychomotor development has been classified and found good in 6 of 14 cases stabilized by plexectomy, moderate in 3 cases, and poor in 4 cases. - *A. C. Schenker.*

3545 KOPELMAN, A. E.; BROWN, R. S.; & ODELL, G. B. The "bronze" baby syndrome, a complication of phototherapy. *Developmental Medicine and Child Neurology*, 15(1):125; 1973. (Abstract)

A new complication is reported as resulting from phototherapy given to a preterm 7-day-old infant. On admission the baby had periodic respiration of 30/min and a dark grey-brown color of the skin, which did not change with administration of oxygen. Her bilirubin was 10mg/100ml, and the bilirubin saturation level was 6.3. Radiography of the lungs showed a pattern of multiple nodular densities. The serum was dark brown, the urine was a turbid brown, and her stools were bulky and pale. After a change from cow's milk to a medium-chain triglyceride formula, the baby improved, her skin and plasma returning to a normal color, though her serum bilirubin remained elevated. The cause of the child's jaundice was suspected to be preexisting hepatic disease, which prevented the biliary excretion of the photooxidation products of bilirubin. - *A. C. Schenker.*

PROGRAMMATIC ASPECTS – Planning and legislative

3546 International League of Societies for the Mentally Handicapped. *Architectural principles and mental retardation*. Brussels, Belgium, 1972, 39 pp.

The significance of architecture and environment is discussed as they relate to the normalization of the life pattern of the MR. Papers are presented on the general background of architectural planning, its use for social rehabilitation, the emerging role of the architect in future planning for MRs, and the challenge to the architect in this field. These studies are representative of recent publications which have provided meaningful stimulus to planning and design teams concerned with the effect of architectonic design and building layouts and their surroundings on the care of MR individuals. (45 refs.) - *B. J. Grylack.*

rue Forestiere 12
B–1050 Bruxelles, Belgium

3547 **SNYDER, C. HARRISON; & BERGEN, RICHARD P.** Legal consent for vasectomy of mentally retarded minor. *Journal of the American Medical Association*, 221(3):310, 1972.

In the absence of any clearly related court decisions, the Louisiana parents of a 13-year-old MR boy (IQ, 60) seeking medical sterilization of the child to eliminate the possibility of his being responsible for an unwanted pregnancy are advised to seek legal counsel. The parents may be able to get a special court authorization for the operation, or failing that, could have the vasectomy performed in a state where statutes permit sterilization of the MR. - *N. Mize.*

3548 Compulsory sterilization. *Journal of the American Medical Association*, 221(2):229-230, 1972.

The number of legal decisions involving compulsory sterilization of the MR has declined substantially since the 1920's and 30's, when many states enacted statutes providing for sterilization as necessary in the public interest. In some states the enabling statutes still exist, but in a great many others, changing judicial concepts of social justice, due process of law, and individual freedom have challenged the constitutionality of these laws. Other developments in the area of genetic research and modern contraception methods, coupled with the memory of Nazi Germany's compulsory sterilization policy, have greatly changed public and legal opinion on this issue over the years. - *N. Mize.*

3549 **BEGAB, MICHAEL J.** Guest editorial: Some perspectives on research in mental retardation research centers. *American Journal of Mental Deficiency*, 77(5):483-484, 1973.

Mental retardation centers, administered at the federal level under the auspices of the National Institute of Child Health and Human Development, are briefly described and the research work to be carried out in these is referred to. The legislation leading to the construction of such centers was the nation's response to an increasing awareness of MR as a major social, educational, and health problem, a source of human misery, and an economic burden to society. These centers provide the facilities for scientists, clinicians, and field investigators to work together; many new methods have been developed for the detection of birth defects and for corrective treatment of certain inborn errors of metabolism. - *A. C. Schenker.*

7910 Woodmont Avenue
Bethesda, Maryland

3550 **CONLEY, RONALD W.** Benefit-cost analysis. *In: Conley, Ronald W. The Economics of Mental Retardation.* Baltimore, Maryland, The Johns Hopkins University Press, 1973, Chapter 6, pp. 241-323.

The basic principles and techniques of benefit-cost analysis are discussed, relevant to expenditures for the MR. The lifetime earnings of MR workers are calculated for a mildly MR male to be over $500 thousand; the figure is considerably lower for the moderately MR males and for women. It is estimated that for each dollar expended on the vocational rehabilitation of young, mildly MR adult males, an estimated increase in future earnings is about $14 at present-value terms. The lifetime educational costs of the mildly MR were far below their estimated lifetime productivity, even if they attended special education classes for the entire time they were in school. Prevention of institutionalization may be a significant part of the benefits of extending additional community services to the MR, and a substantial share of these benefits is received by taxpayers in the form of reduced provision of public maintenance. Prevention is important, and the benefits are considerable; four programs are described which appear justified on the basis of economic returns alone. (44 refs.) - *A. C. Schenker.*

3551 **CONLEY, RONALD W.** Improving services. In: Conley, Ronald W. *The Economics of Mental Retardation.* Baltimore, Maryland, The Johns Hopkins University Press, 1973, Chapter 7, pp. 324-372.

Alternative programs and evaluative studies regarding the MR are discussed in terms of optimality. An estimated 690,000 adult MR are economically idle; of these 400,000 could be gainfully employed if appropriate services were made available. Subcontract operations are the most important source of work for sheltered workshops, but unfortunately many workshops are poorly managed due to a lack of capable contract procurement personnel. However, workshops could not match the efficiency and job diversity available through regular employment, even if their efficiency were improved. Sheltered living may range from complete and total care in an inst to periodic visits by a social worker; there is, however, a lack of alternatives to inst care which constitutes a glaring gap in the services provided to the MR. Small facilities, if properly developed, may be less costly to operate and will produce more benefits than the present large residential inst. Services to the MR may be financed publicly or privately, and volunteer services should be encouraged, especially those which provide social contact among the MR and their normal peers. (33 refs.) - *A. C. Schenker.*

PROGRAMMATIC ASPECTS – Community

3552 **PERSKE, ROBERT A.** A process of screening and guidance for citizen advocates. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 14, pp. 235-240.

Principles and procedures which have emerged from a year's experience with the citizen advocacy program, operated by the Greater Omaha Association for Retarded Children, are presented. The first contact which a citizen advocacy staff person has with an advocate candidate can give valuable clues (as to motivation, personality) and should be recorded. A printed description of citizen advocacy should be given in response to initial contacts and inquiries. When the candidate has made formal application, the coordinator must decide on whether or not to accept the applicant; when the candidate and coordinator meet, a screening interview is advised. The candidate can now begin his orientation and training sessions. The Coordinator needs to keep in touch with the candidate who has completed his training and is out in the field; failures as well as successes should be discussed as part of the candidate's learning by experience. Group concern meetings with the coordinator are important, and a 6-month's report should be filed on every relationship. The third phase of an advocate-protege relationship is dependent upon the form in which it continues, and it may need to be changed or terminated for various reasons. It is important that this relationship not only begin well, but also end well. - *A. C. Schenker.*

3553 **WOLFENSBERGER, WOLF; & ZAUHA, HELEN, eds.** *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, 277 pp. (Price unknown)

The book is concerned with the promotion of citizen advocacy, or the commitment of members of the community to undertake protective services on behalf of those who are unable to cope with certain problems on their own behalf. Protective services deal not only with the practical concerns of everyday life, such as homes and education or training for jobs, but also with the social interpersonal contacts. In order to organize and implement such services to the handicapped, a number of professional psychologists, social workers, and administrators of various public welfare agencies have been approached for their advice. - *A. C. Schenker.*

CONTENTS: Citizen Advocacy for the Handicapped, Impaired and Disadvantaged: an Overview (Wolfensberger); The Initiation of Nebraska's First Two Advocacy Services (Thomas); Operation of the Citizen Advocate Program in Lincoln, Nebraska (Novak); Implementation of Citizen Advocacy to Date (Zauha & Korn); Youth Advocacy (Wolfensberger & Brown); The Initiation of Nebraska's Youth Advocacy Program (Meyerson); The Operation of the Nebraska Youth Advocacy Program (Brown & Zauha); History and Present Status of Protective Services (Helsel); Citizen Advocacy and the Rights of the Handicapped (Cobb); The Role of the Volunteer Movement in Safeguarding the Rights of the Impaired (Dybwad); Funding, Governance and Safeguards of Citizen Advocacy Services (Zauha & Wolfensberger); Implementation and Operation of Citizen Advocacy Services via Committee Activism (Korn & Wolfensberger); Dissemination and Training in Citizen Advocacy; Guidelines and Resources (Zauha & Wolfensberger); A Process of Screening and Guidance for Citizen Advocates (Perske).

National Institute on
Mental Retardation
Toronto, Canada

3554 **WOLFENSBERGER, WOLF.** Citizen advocacy for the handicapped, impaired and disadvantaged: an overview. *In: Wolfensberger, Wolf; & Zauha, Helen, eds. Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 1, pp. 7-32.

Citizen advocacy is defined and its roles and functions in connection with the protection of the handicapped, impaired, and disadvantaged are outlined. Current protective service laws and practices appear to be more effective in protecting property rights than in protecting human rights; the services are impersonal, uninspired, and the personnel are exposed to a conflict of interests and are often impractical. The new scheme of citizen advocacy calls for a mature, competent citizen volunteer representing the interests of the impaired individual with a mission to use culturally appropriate means to fulfill the instrumental and expressive needs of this individual. Advocacy roles for children and adults are described in terms of their respective needs. The citizen advocacy concept has been criticized on the grounds that not enough citizens are sufficiently motivated, that those who are will encounter difficulties in implementing their work, and that there is not adequate supervision in such roles. The local advocacy office is designed to deal with these problems. Desirable advocate characteristics are listed, and collaboration with existing local service systems is outlined. (44 refs.) - *A. C. Schenker.*

National Institute on
Mental Retardation
Toronto, Canada

3555 **THOMAS, GEORGE.** The initiation of Nebraska's first two advocacy services. In: Wolfensberger, Wolf; & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 2, pp. 35-41.

Citizen advocacy in Nebraska is described and illustrated by the initiation of the first two advocacy services. One of the major reasons why people are returned to insts (either psychiatric hospitals or MR insts) is that they fail to adapt to society; advocates can help these people to resocialize. A community support system was developed by setting up a Study Committee to review such needs as protective and guardianship services and volunteer and public agency involvement in community programs. Lincoln was picked as a possible

pilot community and representatives from various service agencies were invited to attend the initial meeting. Out of this meeting, the first goals for a pilot project emerged through the efforts of a Steering Committee. A goal of 100 advocacy relationships in the first year was set. The question of funding arose and a small amount of federal money was transferred for this purpose to the Office of Mental Retardation. The funding continued for a second year, at a reduced level. The project was seen as a public education measure and it was hoped to acquaint advocates with the insts and the problems they have to face. - *A. C. Schenker.*

U.S. Department of Health,
Education and Welfare
Kansas City, Kansas

3556 **NOVAK, LEOLA.** Operation of the citizen advocate program in Lincoln, Nebraska. *In: Wolfensberger, Wolf, & Zauha, Helen, eds. Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 3, pp. 45-78.

The setting up and operation of a Citizen Advocate Program in Lincoln, Nebraska, are delineated. The proposal was submitted by the Capitol Association for Retarded Children (CARC) to sponsor the first citizen advocacy service for the MR, and estimated a need for 200-500 individualized relationships for the MR in Lincoln. Persons needing such relationships would include: MR children without adequate homes, young adults and the elderly returning to the Lincoln community from the Beatrice State Home, and other MR persons who need help. To set up the advocacy office, a coordinator was appointed by the executive director, financial assistance was allotted by the State Office of Mental Retardation, and supportive staff was recruited. An advisory committee was organized by the coordinator, and a small group from this committee was organized as the Executive Committee. Other committees (subcommittees) included: Publicity and Promotion, Legal, Foster-Adoptive-Welfare, Aged and Nursing Home, and Employee-Protege Relations groups. The administrative functions performed by the Advocacy Office included recruitment of potential advocates and proteges, for which the methods used are described. Results to date and problems to be dealt with are discussed - *A. C. Schenker.*

Citizen Advocate Office
Lincoln, Nebraska

3557 **ZAUHA, HELEN; & KORN, MAX.** Implementation of citizen advocacy to date. In: Wolfensberger, Wolf; & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 4, pp. 81-89.

Implementation of citizen advocacy in the United States and Canada is reviewed. In the U.S., citizen advocacy was the topic of a presentation by George Thomas and Julie Meyerson at the Regional President's Committee on Mental Retardation (PCMR) in September of 1970; the presentation of this subject was repeated in Washington and subsequent negotiations led to the issuance of a contract to Dr. Wolfensberger for the production of material on citizen advocacy and protective services. As a result of various workshops and presentations, other associations for MR children endorsed this concept. The pioneering efforts in Nebraska led to the establishment of state programs in Texas, Colorado, Pennsylvania, Ohio, New Jersey, New York, Missouri, and Florida, some of which are more elaborate than others. A number of other areas are becoming interested in these projects. In Canada, the idea first caught on after the attendance of 10 Canadians at meetings in Omaha and Kansas City on the subject of citizen advocacy leadership training. Nine of the provinces are interested in promoting programs; some are more advanced in the implementation than others. More persons are being discovered or newly perceived as living lives of second-class citizens and therefore needing citizen advocacy services. - *A. C. Schenker.*

Citizen Advocate Office
Lincoln, Nebraska

3558 **WOLFENSBERGER, WOLF; & BROWN, BRIDGET MOYLAN.** Youth advocacy. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 5, pp. 95-101.

The needs that can be fulfilled by youth advocacy are delineated, and the essentials of such a project are discussed. Conceivably, for an aged protege, a youth could play an expressive role similar to that of a grandchild, but in the majority of instances, youth will be most comfortable and effective as advocates to persons of similar or somewhat younger age; their role would be that of a friend or an older sibling. The essentials of youth advocacy are delineated in terms of individualization of relationships, sustained relationships, representation of protege interests, and freedom from conflict of interests. The orientation and training of youth advocates should include a review of the types of activities that can help to carry the relationship. There are instances where it would be desirable to have a youth advocate function in conjunction with an adult advocate, and in some cases a co-advocacy arrangement might prove effective. Youth advocacy can also serve as an apprenticeship for adult advocacy and can thereby serve as a recruiting and practice ground. - *A. C. Schenker.*

National Institute on
Mental Retardation
Toronto, Canada

3559 **MEYERSON, JULIE.** The initiation of Nebraska's youth advocacy program. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 6, p. 105-111.

The planning for youth advocacy, preparation of the advocates, and early results of the program are reviewed. The first meeting to explore a pilot youth advocacy project took place at the Beatrice State Home, an inst for the MR, between the inst's staff, the Office of Mental Retardation, and youth representatives and their advisors. Youths from Nebraska's Youth Association for Retarded Children (ARC) from across Nebraska were then invited for a visit to the inst. A special weekend was planned for this visit, the object being to acquaint the youths with the life in the inst and to establish what was meant by a citizen advocate; other groups came subsequently, and each youth was paired with a resident on the basis of age. Before matching the pairs, the youth advocates were given a training session to acquaint them with what they would have to know about the MR youth. The areas which were thought to be of special significance were: grooming, communications, self-reliance, physical dexterity, and adaptability. One of the essential functions of the youth advocates is to provide peer role models. Occasional problems arose between the youth advocates and the aides, but on the whole the program had many successes, and the youth advocates gained a new insight into what the MR person is exposed to in an inst. - *A. C. Schenker.*

Lincoln Information Service
for the Elderly
Lincoln, Nebraska

3560 **BROWN, BRIDGET MOYLAN; & ZAUHA, HELEN.** The operation of the Nebraska Youth Advocacy program. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 7, pp. 115-126.

Regulations and procedures pertaining to the inst-oriented statewide Nebraska Youth Advocacy program are outlined. The persons involved in coordinating the program at its inception were: the state youth advocacy coordinator, the local youth advocacy chairmen, and the adult youth advocacy advisors; the coordinator's role is to negotiate with the inst concerning the operation of the program. The responsibility of the local chairmen is to orient the local unit members who want to become youth advocates to the concept and operation of the program, and the adult advisors assist the state coordinator and local chairmen in important negotiations, decisions, and activities. The prospective youth advocate must participate in a training session in youth advocacy, given by his local youth advocacy chairman together with the youth advocacy advisor; a probationary period of at least 3 months is envisaged. Youths under the age of 16 are encouraged to join a two-to-one advocacy. Certain information regarding the protege is given out through the state youth advocacy coordinator. Visits to the inst and reimbursement for travel are arranged beforehand. The full benefits of the program may not be apparent until the protege returns to the community, but it is obvious that many youth advocates are enthusiastic and committed to the program. - *A. C. Schenker.*

3561 **HELSEL, ELSIE.** History and present status of protective services. In: Wolfensberger, Wolf; & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 8, pp. 131-146.

The development and practice of protective services are outlined, together with a critique of existing mechanisms. In the US, protective services for the handicapped were the subject of a conference (in 1966) in connection with the United Cerebral Palsy Association, which succeeded in focusing attention on the problem. This conference stimulated a few people to make a further effort to interest agencies of national stature. Protective services are seen as an umbrella of protection authorized by law, which includes the elements of outreach (to identify clients), counseling, case management, legal intervention, guardianship, and lifetime partnerships through a continuous case contact. Existing child welfare services have the authority to carry out this work, but it is questionable whether these services are sufficiently personalized. A citizen advocacy system can alleviate this situation. Several of the mechanisms have a conflict of interest; the service giving agency is not separate from the protective agency, and the two operations have been combined to begin instituting services. It is important to meld together the best elements of existing services into a successful plan of delivery. (6 refs.) - *A. C. Schenker.*

3562 **COBB, HENRY V.** Citizen advocacy and the rights of the handicapped. In: Wolfensberger, Wolf; & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 9, pp. 149-161.

A review of some of the specific jural rights of the handicapped and disabled persons is presented. Underlying all human rights are a set of 3 principles applicable to all citizens in a democratic society: positive presumption, referred to in the US Declaration of Independence as "certain inalienable rights"; due process, which holds that sufficient cause for abridgement of any right must be determined by legally defined and established procedures; and instrumental protection, provided by society for the protection of rights. Within the provision of these instrumental protections, social services such as protective services are included. These are protective of rights of the person so as to enhance his human qualities to the fullest extent possible. Special services, such as those of citizen advocates, can attempt to bridge the gap that lies between the existing capabilities of the person and the functions which people of his age and station normally engage in or have the right to engage in. In the case of the MR, some of the specific rights and their implications for advocate action are: the right to contract or convey; testamentary capacity (the right to make a will); capacity to sue and be sued; marriage and annulment; parental capacity; testimonial competence and ability, fair trial, licensure, and the right to vote and hold public office. - *A. C. Schenker.*

University of South Dakota
Vermillion, South Dakota

3563 **DYBWAD, GUNNAR.** The role of the volunteer movement in safeguarding the rights of the impaired. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 10, pp. 165-173.

The similarity of the problems of handicap, from an international viewpoint, and the solutions being put forth in response are discussed. MR is becoming recognized as a problem which is not confined only to children. A home for these adults and an occupation must be considered. The new emphasis on community-integrated facilities brings with it a shift from centralized to decentralized, and therefore local, services. Governments and agencies in many countries are pressing to have services and facilities for the MR combined with other handicaps. In the International League of Societies for the Mentally Handicapped, local, state, and provincial associations are formally affiliated with the League, which has member associations in more than 50 countries. The League has departed from the traditional legal concept of guardianship and has alluded both to advocacy and to community participation. Associations of parents and friends of the handicapped work in a field of human activity which has been characterized by a rapid broadening of scientific knowledge and professional skills. Advocacy on the agency level is good and needed,

but it is not enough, and does not diminish the responsibility of voluntary associations. (4 refs.) - *A. C. Schenker.*

Brandeis University
Waltham, Massachusetts

3564 **CALDWELL, BETTYE M.** Critical issues in infancy and early child development. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 18, pp. 333-351.

A review of critical issues in infancy and early childhood development research from the sixties to present day issues is presented. In the past decade, researchers made the effort necessary to establish and maintain contact with infants and their families after the initial period of the first 5 or 6 days of life. Most research in child development centered around improved methodology and broader theoretical orientations. Today the critical issues are those that relate to the world in which infants live and are going to live. One such issue is the impact of different patterns of family living; another concerns the need to know more about the effects of day care arranged outside a child's own home from the early months of life onward. It is important for society to concern itself with the kind of attributes which it wishes to encourage in children before programs can be organized for training. It is suggested that a model scheme be proposed through which every socially relevant idea must pass before it is approved for public consumption; the scheme would involve beginning with an animal study and testing in a small group of humans, similar to drug testing currently used. (53 refs.) - *A. C. Schenker.*

Center for Early Development and
Education
College of Education
University of Arkansas
Little Rock, Arkansas

3565 **BRONFENBRENNER, URIE.** Developmental research and public policy. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 19, pp. 352-380.

The implications of research on children for the design of social policies and programs that can enhance the process of human development are examined. In addition to health care, other conditions necessary to ensure and enhance child development in the early years are the use of reinforcement by the parent and of modeling (or imitation). The psychological development of the child is also enhanced through his involvement in progressively more complex, enduring patterns of reciprocal contingent interactions with persons with whom he has established a mutual and enduring emotional attachment. The extent to which such a reciprocal system can be developed and maintained depends on the degree to which other encompassing and accompanying social structures provide the place, time, example, and reinforcement to the system and its participants. Policies and programs affecting the growing child are discussed as applying to day care, availability of the mother for involvement in the program, reacquainting children with adults as participants in the world of work, the involvement of children in genuine responsibilities, and neighborhoods and communities as support systems. (30 refs.) - *A. C. Schenker.*

New York State College of Human
Ecology
Cornell University
Ithaca, New York

3566 **PAPOUSEK, HANUS.** Group rearing in day care centers and mental health: potential advantages and risks. In: Nurnberger, John I., ed. *Biological and Environmental Determinants of Early Development*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 21, pp. 398-411.

The history of day care in the USA is reviewed and the large scale system of day care, under consideration by the government, is discussed. It is becoming very evident that more and more mothers are interested in different forms of employment for other than economic reasons; they are no longer satisfied with the former ways of life and family patterns. The potential role which day care can fulfill is that of facilitating the identification of individuals with the values and ideals of the society and the engagement of future citizens in solving the common problems of the whole human society. It may help to remove the consequences of prejudices and to bridge differences between different parts of the population. However, day

care may fail if it is organized carelessly or is poorly equipped, understaffed, or undermined by incompetence and indifference. Thus far day care centers in the USA have contributed to a close interconnection between the center and the community and have prompted the participation of men. Such units can improve the difficult task of child rearing. (24 refs.) - *A. C. Schenker.*

Harvard Medical School
The Children's Hospital Medical Center,
Boston, Massachusetts

3567 ZAUHA, HELEN; & WOLFENSBERGER, WOLF. Dissemination and training in citizen advocacy: guidelines and resources. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 13, pp. 215-232.

Following a large number of public presentations on citizen advocacy services, and after conducting a series of training sessions, the efforts of citizen advocates have yielded certain information regarding guidelines and resources. In structure and orientation presentations the sessions should be planned to be equally illuminating to all levels (both professional and ordinary citizens). The presentations should include 3 areas: understanding what citizen advocacy is; ideological conviction that such an application is desirable; and conviction of the practicality of the plan. The presentations differ in length of time allocated, from a 45-minute talk by single speakers to 2-day workshops, where participants can discuss the subject among themselves, and include a leadership training workshop. Resource persons to draw upon for dissemination include persons associated with a successful citizen advocacy operation, support staff from national organizations, successful and articulate advocates and sometimes their proteges, and persons who can document the needs for citizen advocacy on a local basis. Audiovisual sources are detailed as well as sources for published material. - *A. C. Schenker.*

Citizen Advocate Office
Lincoln, Nebraska

3568 KORN, MAX; & WOLFENSBERGER, WOLF. Implementation and operation of citizen advocacy services via committee activism. In: Wolfensberger, Wolf; & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 12, pp. 195-204.

The role of a skilled activist committee in the implementation and operation of citizen advocacy services is defined, and each committee's functions are described. The purpose of the provincial/state citizen advocacy committee is to activate and support local committees in their effort to implement local offices or programs. The committee should be composed of members who have, or are likely to form, strong commitments to the citizen advocacy concept. The functions of such committees are: to conduct large-scale publicity regarding the advocacy concept; to draw up a timetable indicating dates by which various assignments should be completed; to select a particular geographical target area for initiating citizen advocacy; to assist in the formation of local committees; and to maintain a strong liaison with all local committees. The purpose of the local committee is to work toward the implementation of at least one citizen advocacy program in their area; this committee consists of consumers of human services, professionals, concerned citizens, and members of various public agencies (including volunteer organizations). Under the aegis of the local committee, various subcommittees should be formed for specific administrative tasks. The involvement of a maximum number of community members in the implementation process is urged. - *A. C. Schenker.*

3569 ZAUHA, HELEN; & WOLFENSBERGER, WOLF. Funding, governance and safeguards of citizen advocacy services. In: Wolfensberger, Wolf, & Zauha, Helen, eds. *Citizen Advocacy and Protective Services for the Impaired and Handicapped.* Toronto, Canada, National Institute on Mental Retardation, 1971, Chapter 11, pp. 179-192.

Funding, governance, and location of citizen advocacy services and offices are discussed. To begin and operate local citizen advocacy programs, state/provincial, regional, or national offices could perform some very useful functions. A national

office could be a clearing-house of the highest level for new ideas regarding the implementation of citizen advocacy. Independent location and funding for an office is recommended so as to make it as free as possible from outside dictation and interest conflict; it is recommended that a paid, full-time coordinator or director be employed; recruitment, orientation, and support of advocates should be on a long-term basis; the program should provide a mechanism for both instrumental and expressive advocacy; and advocates should be free to represent their protege's interests. Funding sources and the costs of local citizen advocacy offices are detailed; the costs include: salaries for 3 staff persons (coordinator, assistant coordinator, and secretary), professional consultation, office space and equipment, and advertising.- *A.C. Schenker.*

Citizen Advocate Office
Lincoln, Nebraska

3570 **MACGILLIVRAY, R. C.; & PRIMROSE, D. A.** Supporting service for the mentally handicapped. *British Medical Journal*, 2(5867):663, 1973.

Coordinated services for the mentally handicapped would help insure the needed comprehensive and prolonged care to which they are entitled. The establishment of a single responsible body to effect such coordination of services is a necessary and long-overdue development in health care. - *C. Wares.*

Lennox Castle Hospital
Lennoxtown, Glasgow
Scotland

3571 **CONLEY, RONALD W.** Programs for the mentally retarded. In: Conley, Ronald. *The Economics of Mental Retardation*. Baltimore, Maryland. The Johns Hopkins University Press, 1973, Chapter 4, pp. 68-160.

Programs are described which provide services specifically as a consequence of MR. These programs have varying goals and serve a wide range of functions: developmental, supportive, protective, rehabilitative, and modification of work or social milieu. During 1968 and 1970, about 275,000 MR persons were inst at a cost of about $6,000/year for 1970. Inst is generally effected in cases that do not receive adequate care at home and is more often the case in severely, rather than moderately, MR individuals. In 1970, almost 690,000 MR children attended public or private special education classes; since 1968 the proportion of school-age MR in special classes has increased slightly. Data are given for the number of MR who received clinical services and for those who were rehabilitated or worked in sheltered workshops. About $365 million was disbursed to 360,000 MR individuals by income maintenance programs, and over $3.6 billion and $4.7 billion were expended, respectively, for 1968 and 1970 for miscellaneous programs. Costs are compared between the different types of classes for the MR and those for regular schooling; state and local governments funded over four-fifths of the operating costs for the various programs described. (127 refs.) - *A. C. Schenker.*

3572 **CONLEY, RONALD W.** The effects of mental retardation. In: Conley, Ronald W. *The Economics of Mental Retardation*. Baltimore, Maryland, The Johns Hopkins University Press, 1973, Chapter 5, pp. 161-240.

The major ways in which MR affects social welfare are delineated in terms of productive capacity, behavior, psychic effects, and other effects, including those that influence interpersonal relationships. All effects of MR are measurable, some in terms of costs, and others in terms of services given or received. Figures are available for the approximate costs of inst as compared to noninst of MR. A partial estimate of the social cost of MR in 1970 was $7 billion. An estimated 87% of mildly MR adult males are employed, and 33% of mildly MR females. Among persons with IQs between 40 and 50, an estimated 45% of the males and 12% of the females are employed at wages that are 19% of the average. Vocational failure among MR is usually associated with other impediments to employment, such as unwillingness to work, physical or emotional disabilities, and job discrimination. Young mildly MR adults appear to violate the law twice as often as their non MR peers, and the crimes they commit are more serious. Most mildly MR adults marry, and their children tend to be intellectually and academically behind children of normal parents. (87 refs.) - *A. C. Schenker.*

3573 **KRAUS, J.** Supervised living in the community and residential and employment stability of retarded male juveniles. *American Journal of Mental Deficiency*, 77(3):283-290, 1972.

Living in the community under supervision was found by multiple regression analysis to have a significant positive relationship to all measures of social adjustment used in this study, except delinquency. Social adjustment of the 74 MR male juveniles (mean age 16.1 years) involved in the community supervision program was measured in terms of residential and employment stability as a function of both intra- and extra-individual factors, court appearances, and absconding from supervision. The mean period of observation was 23.1 months. Among other trends noted is an association between higher IQ and delinquency, residential stability, and less frequent absconding. (23 refs.) - *N. Mize.*

Department of Child Welfare and
Social Welfare
Sydney, Australia

3574 **MORRIS, PAULINE.** Social research and social policy. In: Clarke, A.D.B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*. Baltimore, Maryland, Williams and Wilkins, 1973, pp. 49-56.

Sociological research may aim towards resolving contemporary social problems, and the findings may be used to give intellectual respectability to policies made by administrators of programs. Sociologists are often asked by policy-makers to design services that enable deviant individuals to fit into society in a nondeviant, politically inert way. Sociologists are also asked to find ways to make the community more tolerant of deviation and to survey the incidence or etiology of deviation, but not to define deviation. These questions presume that the deviant can be accommodated within the existing structure. Findings which show that significant changes are needed are usually not implemented because of bureaucratic inertia and the reluctance of administrators to admit mistakes. Centrally administered inst, such as the penal system, are less responsive to the need for change than locally administered and presumably more flexible inst, such as regional hospitals. (11 refs.) - *V. J. Goldberg.*

3575 **BARTON, RUSSELL.** The institutional mind and the subnormal mind. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 2, pp. 13-20.

Inst care in general and care for the MR are discussed with particular reference given to the effect of inst life on these individuals. The features which predominate in all insts are: that the inmates tend to sleep, work, and play in the same place; that their daily activities are carried out in the company of large numbers of people; and that these activities are tightly scheduled and controlled by formal rulings. In hospitals for the MR and subnormal, the effect of the inst has been to produce a specific psychiatric syndrome, characterized by apathy, lack of initiative, submissiveness, and sometimes no expression of resentment against unfair orders. The factors associated with such insts, named the 7 deadly sins, are: loss of contact with the outside world; enforced idleness; bossiness of medical and nursing staff; loss of personal friends, possessions, and personal events; excessive use of drugs; bad ward atmosphere; and loss of prospects outside of the inst. A means of correcting these sins is to classify the MR in terms of intelligence, the main purpose of which should be to discover their potential learning ability and to teach them accordingly, so that the individual can fit into society. (9 refs.) - *A. C. Schenker.*

3576 **ROSEN, MARVIN; FLOOR, LUCRETIA; & BAXTER, DONALD.** The institutional personality. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 3, pp. 21-28.

Some facets of the personality of individuals leaving insts for the MR are discussed. The focus of concern is a group of about 200 persons returned to independent living from Elwyn Institute. Apart from intellectual and cognitive deficits, personality and behavioral characteristics have been observed: lowered self-esteem and related motivational deficits, conditioned helplessness, acquiescence to authority, inappropriate behaviors, and sexual inadequacies. Recommendations for remedying these developments are offered. Insts have to be restructured and staff reeducated in ways that will alleviate the conditions described. Increasing emphasis must be placed on socializa-

tion and interpersonal relationships within insts; social learning rather than academic achievement should be their primary function. Insts should be structured to simulate the reinforcement contingencies available in the community. Coeducational activities should be an important part of inst life from the youngest years, and psychotherapy should be provided for those demonstrating sexually inappropriate behaviors. (24 refs.) - *A. C. Schenker.*

Elwyn Institute
Elwyn, Pennsylvania

3577 NIRJE, BENGT. The normalization principle—implications and comments. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 4, pp. 29-38.

The management of the MR and deviant person is discussed on the basis of the normalization principle, which implies normalization of the total environment, of activities, attitudes, and atmosphere surrounding the persons in question. The problem of MR is seen as a combination of 3 factors: the MR of the individual, the cognitive handicap associated with impairment in adaptive behavior; the imposed or acquired subnormality, as expresssed in behavioral malfunctioning or underfunctioning due to possible deficiencies in the environment; and the awareness of being MR. Normalization means a normal rhythm of the day for the subnormal, the pursuit of the accepted daily activities; a normal weekly rhythm in which the leisure and work activities are alternated as with normal individuals; a normal rhythm of the year, by having holidays and observing family days of personal significance; the normal development experiences of the life cycle; having one's desires respected; and life in a bisexual world. A prerequisite for making normalization for these individuals possible is to apply normal economic standards and to allow them normal standards of physical facilities. (10 refs) - *A. C. Schenker.*

Mental Retardation Services Branch
Ministry of Health
Ontario, Canada

3578 ELLIOTT, JAMES. Eight propositions for mental hadndicap. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 5, pp. 39-46.

The needs of the MR are presented in the form of 8 propositions which combine to produce one entire system for the MR. We need to organize a unified service headed by a director with special skills for coordinating a team. No single profession is uniquely qualified to direct this service, but hospitals have the experience of this kind of direction. No single site is automatically the best from which to coordinate the service, but it might be useful to begin with the hospital. Hospitals should make special efforts to help the MR become part of the community. The hospital should be retained only if it has a particular facility not available elsewhere (nursing, medical treatment, etc.). A hospital must decide upon the life-style which it aims to encourage and proceed to that end. A hospital must decentralize to the level of the living unit as much authority as is consistent with its major aims. The MR should at all times be aided by the same team of professionals. (8 refs.) - *A. C. Schenker.*

King's Fund Centre
London, England

3579 ROITH, A. I. The rights of the mentally handicapped. *Lancet*,1(7818):1504, 1973. (Letter)

Comments addressed to the editor on an article dealing with services for the mentally handicapped express agreement with one of the suggestions made to explain the inadequate service given these persons. This suggestion explains the sluggish service as being due to the nature of the handicap. One of the most esteemed human qualities is intelligence, and nothing can be more insulting to a person than to rate him as stupid or backward. The mentally handicapped are discriminated against more than those with any other type of handicap. Until the Western World learns to suffer such people, they will continue to be given the lowest possible priority. (1 ref.) - *A. C. Schenker.*

Monyhull Hospital
Birmingham 30, England

3580 **CONLEY, RONALD W.** The Economics of Mental Retardation. Baltimore, Maryland, The Johns Hopkins University Press, 1973, 377 pp. $15.00.

The problems associated with MR are reviewed in terms of effects on the individuals and families concerned and effects on the community and on the national economy; some solutions are discussed as to services and programs which could be of benefit. In practical terms, a great deal of money could be saved if MR, particularly those who are mildly MR, would be given opportunities to work. Tables are presented which give figures for rates of MR in studies with respect to age, race, severity, residential care, and physical handicaps. Other tables supply information on estimated costs and earnings.

CONTENTS: Introduction; The Epidemiology of Mental Retardation; The Etiology of Mental Retardation; Programs for the Mentally Retarded; The Effects of Mental Retardation; Benefit-Cost Analysis; Improving Services. (426 refs.) - *A. C. Schenker.*

3581 **CONLEY, RONALD W.** Introduction. In: Conley, Ronald W. *The Economics of Mental Retardation.* Baltimore, Maryland. The Johns Hopkins University Press, 1973, Chapter 1, pp. 1-5.

Mental retardation is defined, its effects are described, and the role of economics in this connection is delineated. MR refers to a condition of inadequately developed intelligence which significantly impairs a person's ability to learn and to adapt to the demands of society. Many MR persons suffer a diminished capacity to perform adequately as students, workers, or homemakers, and are often reduced to dependency for the provision of their needs. There is a high incidence, generally long-term, of MR in the US. MR generally increases the tax burden on the average taxpayer but, according to most professionals in this field, many cases of MR can be prevented and many of these individuals are teachable. Inasmuch as economics is concerned with the allocation of scarce resources among competing uses—these resources comprising land, labor, and capital—the distinction between the quality and quantity of resources is crucial. The MR are a significant part of our labor resources; most can be trained to produce the goods and services that satisfy many of society's wants. - *A. C. Schenker.*

PROGRAMMATIC ASPECTS — Residential

3582 **SCHWERDT, JOHN.** Therapeutic variety—a day-to-day basis of design for the subnormal. *In: Gunzburg, H.C., ed. Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 23, pp. 184-187.

When the design of building for the MR is being discussed, the architect should be made aware of problems that concern the education and training which could be aided by certain physical adjustments. The design of workshops, for example, should anticipate the type of atmosphere prevalent in small workshops where the MR may be employed at some future time. A self-service canteen is another feature that the patient will probably encounter. The same principles apply to traffic experiences, so as to prepare the MR for daily risks in the outside world. The easily recognizable criteria of ordinary life should be incorporated into the design of the building; these can add to the therapeutic value of the patient's sojourn in the hospital. The architect is considered a positive element in the therapeutic process. (2 refs.) - *A. C. Schenker.*

3583 **BLAND, G. A.** Some architectural requirements for a scientific approach to teaching the mentally handicapped in hospital schools. In: Gunzburg, H. C., ed. *Advances In the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 22, pp. 177-183.

A systematic approach to teaching the MR in hospital schools is discussed; it is important that teaching areas be provided which are designed to assist the teacher in carrying out the special education program. Conventional classrooms must give way to intimate group rooms reproducing a

domestic atmosphere. The child must be tempted to the activity areas which bound him on each side; there must therefore be complete ease of egress. The environment must be designed not only to lure the child but to challenge him. Construction materials and decor should be varied in an exciting manner, with different types and colors of flooring, use of carpets, and curtains. The staff should also be adequately housed in this setting, where mobility and ease of supervision must be achieved by functional design. (11 refs.) - *A. C. Schenker.*

Brockhall Special School
Old Langho
Blackburn, United Kingdom

3584 **GUNZBURG, H. C.** The role of the psychologist in "manipulating" the institutional environment. In: Clarke, A. D. B.; & Clarke, A. M., eds. *Mental Retardation and Behavioural Research*. Baltimore, Williams and Wilkins, 1973, pp. 57-67.

The absence of active guiding principles in the programs of residential communities permits the emergence of laborsaving management practices and depersonalization. The inst's administrators should attempt to recreate normal conditions by having the patients live in ordinary houses, not in wards, by using the physical environment to maximize learning experiences, and by encouraging the nurses to help educate the patients in normal life patterns. A multidisciplinary approach which utilizes the psychologist in policy- making and management is needed in order to develop a "normalized" inst. The psychologist must use his skills in achieving communication among the workers in the inst. The format of these staff meetings would be a cross between a clinical case conference and a patient-management consultation. (22 refs.) - *V. J. Goldberg.*

3585 **GUNZBURG, H. C.** The hospital as a normalizing training environment. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 6, pp. 47-60.

It is suggested that the hospital setting be reorganized to become a preparatory stage before placement of the MR in normal conditions. To this end, the hospital must provide many varied normal learning opportunities which will permit the MR to practice the normal skills of living. The informal learning situation must be deliberately programmed and manipulated to ensure its effectiveness in a social training program. The need for multidisciplinary leadership and a planned variety of different professional skills is stressed. The inst framework is a very convenient and economical arrangement for manipulating an environment for therapeutic teaching purposes, but in its present form it gives only limited service of mostly poor quality to a minority of long-term patients. The careful manipulation of well-functioning departments, good living conditions on the wards and entertainment for patients, together with the creation of conditions as normal as possible, will further normal functioning, which can be attained by many subnormals. The inst framework has the potential for giving such individuals the essential training for normal life. (17 refs.) – *A. C. Schenker.*

Psychological Services
Subnormality Hospitals
Birmingham, United Kingdom

3586 **BOUGHTON, C. R.; & HAWKES, R. A.** The problem of viral hepatitis in a residential institution. *Journal of Mental Deficiency Research*, 17(2):143-147, 1973.

A longitudinal epidemiologic study of the pattern of viral hepatitis and the transmission of Australia antigen in a particular residential inst for the MR was initiated among the patients of the inst in July 1971, following an outbreak of infectious hepatitis (Au antigen negative) in the fall of 1970. Two hundred and 6 patients were studied, 115 of whom had Down's syndrome. Examination of sera from the original outbreak showed the majority of the 17 patients with illness to be Au antigen negative and indicated that this outbreak was probably due to infectious (Au negative) hepatitis. Four of 5 patients with Au antigenemia were shown subsequently to be chronic Au antigenemics. Examination of sera taken in July 1971 and subsequently revealed high prevalence rates of chronic Au antigenemia among residents, a carrier rate of 20% being found for Down's syndrome cases as compared with a 4.4% rate for non-Down's syndrome patients. During the 15 months of the study, 5 patients and a staff member have developed Au antigen-associated hepatitis. Trans-

mission probably occurred by nonparenteral means. In order to ensure optimum interpretation of future results, all residents of such inst should have their blood tested for the presence of Au antigen and antibody at the time of admission or as soon as possible thereafter. (8 refs.) - *B. J. Grylack.*

Prince Henry Hospital
Sydney, Australia

3587 **DYBWAD, GUNNAR.** Architecture's role in revitalizing the field of mental retardation. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped.* Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 24, p. 188-191.

The architect's client is really the MR person, and the architect can make an important contribution to the field of MR. Today's attitude toward the MR is changing, and his desires are considered in planning; even the most severely MR persons respond to their environment. The challenge to the architect in MR is no longer to build from the outside in. Rather the architect will build from the inside out, taking as his point of departure the individual resident and his living space. Hence, planning should begin with the place where a certain resident will sleep, with the places where he will eat, work, and play, and with the interrelationship between them. The concept that architecture should not expose the MR to any risk at all is not absolute. The architect should play a part in the furnishing of the building he designs. (14 refs.) - *A. C. Schenker.*

Brandeis University
Waltham, Massachusetts

FAMILY

3588 ROITH, A. I. The myth of parental attitudes. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Hanaicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 28, pp. 221-224.

The attitude of the parents of a subnormal child is discussed in terms of the first reaction to the discovery and their subsequent feelings. Most of these parents are able to discuss their children in a sane and sensible fashion. A questionnaire was submitted to parents of subnormals, and some 1,400 answers were scanned. To the question regarding guilt feelings, 94% replied in the negative; 40% agreed with mercy killing for incurable cases; one-half described their initial feelings on discovery of the child's condition as one of shock; one-quarter stated that they believed the condition could be cured; 3% accepted the situation; the remainder did not believe it or had negative feelings. Over the years 94% accepted the child emotionally. (However, only 1/4 prefered to care for the child at home.) An important factor in the acceptance of subnormality by the parents is the fear of adverse opinion by others. According to some investigators, the parents do have guilt feelings, but these stem from their fear of rejecting the child. In answer to another questionnaire, only 52% of 120 mothers thought that getting together with other parents of similarly affected children was helpful.-*A. C. Schenker*.

Monyhull Hospital
Birmingham, United Kingdom

3589 MACKEITH, RONALD. The feelings and behaviour of parents of handicapped children. *Developmental Medicine and Child Neurology*, 15(14):524-527, 1973.

The behavior of parents of handicapped children is discussed in terms of their feelings, their attitudes regarding rearing the child at home, crisis periods, and what constitutes support for these parents. The parents' feelings may be mixed ones when discovering that their child is handicapped, including feelings of protection of the helpless with revulsion at the abnormal; inadequacy at reproduction and inadequacy at rearing; and feelings of bereavement (anger, grief, and adjustment). Reaction to these feelings may be overprotection or cold rejection; depression; inconsistency in rearing; aggressive behavior towards others; denial and withdrawal from social contacts. Doctors may reveal their own inadequacy at caring for the child by brusque dismissal of the child and parents. In advising parents regarding the relinquishment of the child to an inst, it must be conveyed that there is no urgency in the decision; the advantages pro and con of the child's going to an inst must be discussed with the parents over a period of years. At certain critical moments in the child's life, the parents must be helped to decide upon a definite course. Help to the parents is a compassionate and necessary part of the care for the handicapped person. - *A. C. Schenker*.

20-22 Mortimer Street
London WIN 8HQ, England

3590 Having a congenitally deformed baby. *Lancet*, 1(7818):1499-1500, 1973.

A personal experience of having a deformed baby is recounted by his mother; the baby was born with deformed arms and feet. The father of the baby was present at the birth, which obviated the stress of telling him about the deformity. It later emerged that there were other deformities: a gap in his lower gum and possibly part of the jaw-bone missing; a deformed tongue, and small eyes. The pediatrician informed the parents of the possibility of the child's being mongol, but pointed out that if the child were mentally normal there might be

some future for him. In spite of advice to the contrary, the parents kept the child and gave him a normal home environment. It is pointed out that others in this situation may be tempted to part with such a child and that the child's pediatrician, who initially advised to have the child inst, had been completely converted to the parents' desire to keep the child. - *A. C. Schenker.*

3591 ILLINGWORTH, R. S. Some points about the guidance of parents of mentally subnormal children. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 29, pp. 225-234.

Some of the important points to bear in mind in order to help parents of MR are delineated. The moment to inform the mother that the child is abnormal should be after the puerperium, and when the diagnosis is established. The diagnosis of mongolism can be difficult and uncertain at times; in the case of cerebral palsy, it must be borne in mind that neurological signs found in the newborn may disappear when the child grows older. Backwardness in infancy is not necessarily permanent; delayed maturation in motor development may also be transitory. The parents should be told with deep sympathy and certain terms (imbecile, hopeless, etc.) should be avoided; retarded or backward are preferable terms. Parents may respond to the news by refusal to accept it. With respect to prognosis, it is important to emphasize the child's assets rather than his limitations; mothers respect sincerity. Genetic advice is part of parent guidance. To advise inst care, the doctor has to consider the degree of retardation, the type of child, and the possible effects on siblings. (20 refs.) - *A. C. Schenker.*

University of Sheffield
United Kingdom

PERSONNEL

3592 ADAMS, MARGARET. Care of "special people." *New England Journal of Medicine*, 286(22):1221, 1972. (Letter)

Experience with a 10-week field seminar requiring 8 first-year medical students to have first hand involvement with the MR at a state school on a helping relation, not an observational footing, has shown this to be an important education in the intangible components of human interaction. The confrontation with severe impairment not amenable to medical therapy reaped important benefits in attitude toward chronic disability and in the students' developing self-awareness of their own emotional response. Medical educators should consider shifting curriculum priorities to accommodate such programs in the future. - *N. Mize.*.

Walter E. Fernald State
School
Waverley, Massachusetts

3593 BAUMSLAG, NAOMI; & YODAIKEN, RALPH E. Care of "special people." *New England Journal of Medicine*, 286(22):1220-1221, 1972. (Letter)

All too often physician sensitivity to the special problems of the chronically ill, including the mentally and physically handicapped, is a neglected aspect of the medical school curriculum. Attention to cultivating a supportive helping relationship between the physician and the affected patient's family is particularly important. Physician awareness of special community resources, educational facilities, available transportation alternatives, and insts can contribute much to promoting the family's welfare. (7 refs.) - *N. Mize.*

3594 O'HARA, J. The role of the nurse in subnormality: a re-appraisal. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 27, pp. 215-220.

The role of the nurse in the field of MR is reviewed in terms of historical development, arguments against nursing, and the proposed solution. From the 1930s on, a better type of person began to enter the nursing profession than had been the case in the earlier era, where nursing of subnormals was confined to workhouses. A further change was produced during the war, draining many hospitals of their staff and contributing to the emergence of an open door policy. However, there was no attempt made to reeducate the nursing staff to deal with MR. In a recent investigation of the needs of the MR in Birmingham hospitals, it was found that only 0.3% required skilled nursing, 35% required basic nursing, and 64% required no nursing at all. It is submitted that the title "nurse" is not appropriate in such settings. The MR inst should be closer to a boarding school than to a hospital, and training for nurses should be geared to this type of organization; the nurse should move toward the role of a teacher in this context. (20 refs.) - *A. C. Schenker.*

Monyhull Hospital
Birmingham, United Kingdom

3595 CLARK, D. F. A reassessment of the role of the clinical psychologist in the mental deficiency hospital. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 26, pp. 200-214.

The contemporary role of the clinical psychologist in a modern MR hospital is reviewed. The difference between his role in this inst and that in a general psychiatric hospital lies in the length of

stay of the patients and in differences in their physical, cognitive, and social handicaps. The application of test techniques and the interpretation of results require particular care because of the interrelatedness of social and cognitive factors. The confusion about the relevance of I.Q. to mental subnormality is acute, and is made even greater by the current legislation. There is a growing need for extensive research into more specific aspects of cognitive and affective functioning of the defective. Counseling and group therapy retain their places among the psychologist's clinical skills, but behavior therapy, especially operant conditioning, must now play a major role. In larger hospitals, there is scope for the psychologist to assist in the practical training for postgraduate and undergraduate psychologists. (53 refs.) - *A. C. Schenker.*

Ladysbridge Hospital
Banff, Scotland

3596 **TRETHOWAN, W. H.** The contribution of some disciplines: a psychiatrist looks at mental subnormality. In: Gunzburg, H. C., ed. *Advances in the Care of the Mentally Handicapped*. Baltimore, Maryland, Williams & Wilkins, 1973, Chapter 25, pp. 193-199.

Because of the various etiologies of MR, the question arises as to whether treatment of such condition should be regarded largely as the prerogative of the psychiatrist. Some good reasons why general psychiatry is applicable to MR cases are given. MR patients are possibly more liable to mental illness than the population at large; the psychiatrist is often consulted regarding behavioral problems in such patients, and he must make a correct diagnosis as to appropriate treatment and disposal. Because states of MR are due to developmental defects, to irrevocable damage to the nervous system which may be the result of birth or other injury, or to deficient genetic endowment, they cannot as such be cured. The care of the severely damaged is obviously a medical and nursing matter, but in the case of the less severely MR, the psychiatrists are hardly equipped to cope productively with the problems of their training, and they may not be motivated to try. For such individuals, hostel accommodations affiliated with industrial facilities and sheltered workshops are appropriate. (1 ref.) - *A. C. Schenker.*

University of Birmingham
Birmingham, United Kingdom

3597 **SPENCER, D. A.** The consultant in mental handicap. *British Medical Journal*, 2(5861):301-302, 1973.

The numbers, roles, and functions of the MR consultant have greatly increased in the last decade, although there is still too little activity in this field of medicine. Role definition for such specialists is difficult, since they must deal not only directly with patients but also in consultative services for family doctors, families of patients, educators, social service departments, and insts. The MR consultant has a special responsibility for coordinating and supervising special services needed for individual patients. He has more need to be skilled in adminstration and human relations than in medical technology, and may enjoy a satisfying career in the exercise of his special combination of expertise. (1 ref.) - *C. Wares.*

Meanwood Park Hospital
Leeds, England

3598 **PRIEN, ERICH P.; & CASSEL, ROBERT H.** Predicting performance criteria of institutional aides. *American Journal of Mental Deficiency*, 78(1):33-40, 1973.

Results of the measurement and of the determinants of performance effectiveness of aides at a residential inst for MR persons are discussed. Results of previous studies include one study of 65 Ss, all ambulatory residents, who were given an experimental battery for the identification of psychological requirements for aide personnel. A second study was designed as a predictive validation, and a provisional selection test battery was administered to 160 applicants for aide positions; of the 96 applicants hired, 68 completed the training program. The results showed substantial correlation between ability tests and class achievement tests. A third study investigated the relationship between job performance effectiveness and selected measures of employee attitudes and perceptions of organization climate. The results revealed that neither the performance measures nor the absence were frequency related to the job attitude or perceived organization climate variables. The interview measure of job withdrawal was significantly related to job attitudes and perceptions of organization climate. It is suggested that from such studies it becomes possible to formulate certain modes of intervention to improve individual performance. (24 refs.) - *A. C. Schenker.*

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3599 **ADAMS, MARGARET.** Teaching compassion for the chronically ill. *New England Journal of Medicine*, 287(4):206, 1972. (Letter)

While it is true that medical school curricula alone cannot inculcate intuitive understanding and compassion in the physician, carefully structured learning can help engender certain patterns of professional thinking and behavior important to the sympathetic management of chronic disability. Latent capacities for thoughtfully handling the human aspects of medical care can be strengthened, as in the case of the MR, where more often a lack of factual knowledge about unfamiliar pathology and the physician's limited social-psychologic insight result in maladroit, not hardhearted, management. A self-conscious reexamination of personal attitudes toward the "hopeless" by medical students might well improve this situation. - *N. Mize.*

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3600 **DODGE, PHILLIP R.** Teaching compassion for the chronically ill. *New England Journal of Medicine*, 287(4):205-206, 1972. (Letter)

Long time experience in dealing with the neurologically handicapped and their families has instilled a more pessimistic understanding of the medical educator's opportunities to engender qualities of human compassion and understanding in physicians. If these traits are not already prominent in the newly entered medical student, it is unlikely that they will later emerge in the doctor's professional life. Perhaps understandably, physicians dislike the frustrations of chronic diseases and, in particular, the realization that all the technical expertise available cannot make such a patient well. - *N. Mize.*

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